PAPER TRADE JOURNAL

THE INTERNATIONAL WEEKLY OF THE PAPER AND PULP INDUSTRY AND THE PIONEER PUBLICATION IN ITS FIELD

PULP

PERKINS-GOODWIN CO.

Established 1846

30 ROCKEFELLER PLAZA, NEW YORK

PAPER

DEC. 2 1937

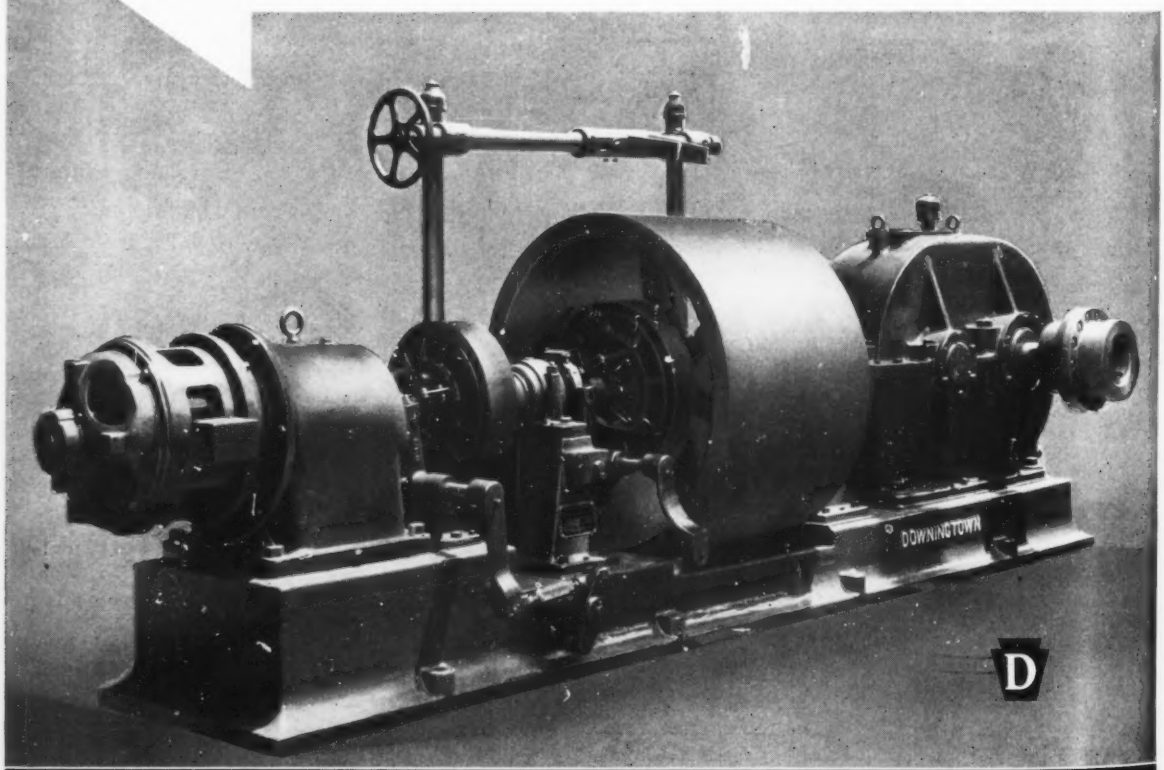
Vol. CV
No. 23

DOWNINGTOWN

Modern Motorized Reversing Mechanism
Totally enclosed double reduction spiral bevel gear unit — Continuous splash lubrication system — Gears and shafts heat-treated
All shafts operate in anti-friction bearings.

REVERSING
CALENDER DRIVE

Quiet, Cool Running Unit — 96% to 98% Efficient
Modern construction is insurance against breakdowns, losses in production and excessive maintenance charges — This is only one unit in our complete line of modern floor drives.



DOWNINGTOWN MANUFACTURING CO., DOWNINGTOWN, PA.

Entered as second class matter at the Post Office at East Stroudsburg, Pa., under the Act of Congress of March 3, 1879. Published every Thursday by the Lockwood Trade Journal Co., at 34 N. Crystal St., East Stroudsburg, Pa. Executive and Editorial office: 15 W. 47th St., New York, N. Y.
Domestic subscription U. S. and possessions, $4.00 per year.

PAPER TRADE JOURNAL

Reg. U. S. Pat. Off.

PAPER — SIXTY-SIXTH YEAR — PULPBOARD

Established Feb. 17, 1899 Consolidated Nov. 16, 1899 with Paper Trade Journal.

Vol. CV, No. 23 Thursday, December 2, 1937

Established Sept. 21, 1919 Consolidated Feb. 19, 1925 with Paper Trade Journal.

Joint Printing Committee Opens Paper Bids

Proposals for Supplying Government Printing Office With Paper for the Six Months Period Beginning January 1 Are Submitted By Thirty-Six Bidders As Compared With Twenty-Five Bidders At Opening In May.

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., December 1, 1937.—Bids were received on Monday by the Joint Congressional Committee on Printing from 36 bidders for paper for the use of the Government Printing Office for the six months beginning January 1, next. At the last bid opening on May 17 of this year, only 25 bids were received.

A survey of the bids indicates that in several instances prices were lower than they were at the last bid opening. Also in a number of classes nothing but identical bids were received and in others identical bids were received except a lower bid from one company.

A meeting of the Joint Committee will be held on December 6 at which time it is expected that awards will be made.

The bids received were as follows:

Newsprint

No. 1—1,500,000 lbs., 24x36—64; rolls, 24, 36, and 48 ins. wide (3-inch fiber cores, with metal ends).

National Pulp & Paper Co., Inc.	2.5c
James F. Walsh Paper Corp.	2.45c
Paper Corp. of U. S.	3.00c

Machine-Finish Book

No. 3—400,000 lbs., 25x38—70; flat, cut 24x32, 28x38, and 31¼x45½ ins.

Stanford Paper Co.	6.24c
Perkins-Goodwin Co.	6.24c
Fitchburg Paper Co.	6.24c
Thomas Barrett & Son	6.24c
John F. Post, Inc.	6.24c
Whitaker Paper Co.	6.24c
James F. Walsh Paper Corp.	6.18c
Walker Goulard Plehn, Inc.	6.24c
Barton, Duer & Koch Paper Co.	6.24c
R. P. Andrews Paper Co.	6.24c
Paper Corp. of U. S.	6.24c
Butler Co.	6.24c

No. 4—400,000 lbs., 25x38—70; flat, cut 24x38 and 38x48 ins.

Stanford Paper Co.	6.24c
Perkins-Goodwin Co.	6.24c
Fitchburg Paper Co.	6.24c
John F. Post, Inc.	6.24c
Whitaker Paper Co.	6.24c
Walker Goulard Plehn, Inc.	6.24c
Graham Paper Co.	6.24c
Marquette Paper Co.	6.24c
Barton, Duer & Koch Paper Co.	6.24c
R. P. Andrews Paper Co.	6.24c
Paper Corp. of U. S.	6.24c

No. 5—400,000 lbs., 25x38—70; flat, cut 24x38 and 38x48 ins.

Stanford Paper Co.	6.24c
Perkins-Goodwin Co.	6.24c
Fitchburg Paper Co.	6.24c
Thomas F. Barrett & Son	6.24c
John F. Post, Inc.	6.24c
Whitaker Paper Co.	6.24c
James F. Walsh Paper Corp.	6.18c
Walker Goulard Plehn Inc.	6.25c
Graham Paper Co.	6.24c
Marquette Paper Co.	6.24c
Barton, Duer & Koch Paper Co.	6.24c
R. P. Andrews Paper Co.	6.24c
Paper Corp. of U. S.	6.24c
Butler Co.	6.24c

No. 6—350,000 lbs., 25x38—70; rolls, 18, 21, and 28½ ins. wide (3-inch iron cores).

Stanford Paper Co.	5.86c
Perkins-Goodwin Co.	5.86c
Fitchburg Paper Co.	5.86c
Thomas F. Barrett & Son	5.86c
John F. Post, Inc.	5.86c
Whitaker Paper Co.	5.86c
James F. Walsh Paper Corp.	5.8c
Walker, Goulard Plehn, Inc.	5.86c
Graham Paper Co.	5.86c
Marquette Paper Co.	5.86c
Barton, Duer & Koch Paper Co.	5.86c
R. P. Andrews Paper Co.	5.86c
Paper Corp. of U. S.	5.86c
Butler Co.	5.86c

No. 7—600,000 lbs., 25x38—70; rolls, 19 and 38 ins. wide. (3-inch iron cores).

Stanford Paper Co.	5.86c
Perkins-Goodwin Co.	5.86c
Fitchburg Paper Co.	5.86c
Thomas F. Barrett & Son	5.86c
John F. Post, Inc.	5.86c
Whitaker Paper Co.	5.86c
James F. Walsh Paper Corp.	5.8c
Walker, Goulard Plehn, Inc.	5.86c
Graham Paper Co.	5.86c
Marquette Paper Co.	5.86c
Barton, Duer & Koch Paper Co.	5.86c
R. P. Andrews Paper Co.	5.86c
Paper Corp. of U. S.	5.86c
Butler Co.	5.86c

No. 8—600,000 lbs., 25x38—70; rolls, 19 and 38 ins. wide (3-inch iron cores).

Stanford Paper Co.	5.86c
Perkins-Goodwin Co.	5.86c
Fitchburg Paper Co.	5.86c
Thomas F. Barrett & Son	5.86c
John F. Post, Inc.	5.86c
Whitaker Paper Co.	5.86c
James F. Walsh Paper Corp.	5.8c
Walker, Goulard Plehn, Inc.	5.86c
Graham Paper Co.	5.86c
Marquette Paper Co.	5.86c
Barton, Duer & Koch Paper Co.	5.86c
R. P. Andrews Paper Co.	5.86c
Paper Corp. of U. S.	5.86c
Butler Co.	5.86c

No. 9—350,000 lbs., 25x38—70; rolls, 24, 36, and 48 ins. wide (3-inch iron cores).

Stanford Paper Co.	5.86c
Perkins-Goodwin Co.	5.86c
Fitchburg Paper Co.	5.86c
John F. Post, Inc.	5.86c
Whitaker Paper Co.	5.86c
Walker, Goulard Plehn, Inc.	5.86c
Graham Paper Co.	5.86c
Marquette Paper Co.	5.86c
Barton, Duer & Koch Paper Co.	5.86c
R. P. Andrews Paper Co.	5.86c
Paper Corp. of U. S.	5.86c

No. 10—250,000 lbs., 25x38—80; rolls, 32 ins. wide (3-inch iron cores).

Stanford Paper Co.	5.85c
Perkins-Goodwin Co.	5.85c
Fitchburg Paper Co.	5.85c
Thomas F. Barrett & Son	5.85c
John F. Post, Inc.	5.85c
Whitaker Paper Co.	5.85c
James F. Walsh Paper Co.	5.79c
Walker Goulard Plehn, Inc.	5.85c
Graham Paper Co.	5.85c
Marquette Paper Co.	5.85c
Barton, Duer & Koch Paper Co.	5.85c
R. P. Andrews Paper Co.	5.85c
Paper Corp. of U. S.	5.85c
Butler Co.	5.85c

No. 11—400,000 lbs., 25x38—80; flat cut 24x38, 33¾x64, and 38x48 ins.

Stanford Paper Co.	5.95c
Perkins-Goodwin Co.	5.95c
Fitchburg Paper Co.	5.95c
John F. Post, Inc.	5.95c
Whitaker Paper Co.	5.95c
Graham Paper Co.	5.95c
Barton, Duer & Koch Paper Co.	5.95c
R. P. Andrews Paper Co.	5.95c
Paper Corp. of U. S.	5.95c

No. 12—600,000 lbs. 25x38—100; flat, cut 22¼x32¼, 24x38, 24¼x36¼, 32x42, 38x48 and 41x52 ins.

Stanford Paper Co.	5.67c
Perkins-Goodwin Co.	5.67c
Fitchburg Paper Co.	5.67c
John F. Post, Inc.	5.67c
Whitaker Paper Co.	5.67c
Barton, Duer & Koch Paper Co.	5.67c
R. P. Andrews Paper Co.	5.67c
Paper Corp. of U. S.	5.67c

No. 13—15,000 lbs., 25x38—120 and 140; flat, cut 29x41, 32x52, and 38x48 ins. Min. order 5,000 lbs.

Stanford Paper Co.	5.67c
Fitchburg Paper Co.	5.77c
John F. Post, Inc.	5.67c
Barton, Duer & Koch Paper Co.	5.67c
R. P. Andrews Paper Co.	5.67c
Paper Corp. of U. S.	5.67c

No. 14—15,000 lbs., blue and salmon, 25x38—70 and 100; flat, cut 25x

(Continued on page 27)

Consolidated Gets Big Coated Paper Order

Contract Made With Life Magazine for Consolidated Co's. New Coated Papers By Filming Process at Rate of 700 Feet Per Minute — Kimberly-Clark Co's. Benefit Assn. To Meet—Other News of Wisconsin Industry.

[FROM OUR REGULAR CORRESPONDENT]

APPLETON, Wis., November 29, 1937.—Consolidated Water Power and Paper Company, Wisconsin Rapids, Wis., has secured from Life Magazine the largest contract for coated paper ever made in the industry. The requirements of this large scale pictorial publication have been met by Consolidated's new Process Coated Papers, made directly on the paper machines by a filming process at the rate of 700 feet a minute.

A source through which several carloads of coated paper could be supplied daily was one of the problems of Life Magazine when it sprung to instant popularity with the reading public, and faced the necessity of mammoth production. The new Consolidated process solved this situation.

Consolidated issued a four page multi-colored broadside to the trade last week announcing that its three brands, Production Gloss, Production E. F. (Filmed), and Rotafilm are now available from jobbers in 125 cities. The circular recounts its achievement in meeting the needs of Life Magazine. It quotes a letter sent to subscribers by Roy Larsen, publisher, which says:

"The ultimate solution of Life's production problem will complete one of the most dramatic revolutions in the art of printing since Gutenberg invented moveable type and Hoe developed the Rotary press.

"This revolution is making it possible to coat and glaze fine paper at the unheard-of speed of 700 feet a minute; to dry ink instantaneously by mixing it with nitrocellulose and exploding it in a roaring fire chamber; to print four colors nearly as fast as one color was printed before; to gather the pages of a finished magazine three times as fast as human hands can move.

"When these four developments are perfected, Life will achieve a goal which, even a year ago, printing experts pronounced impossible—the production of a large-circulation magazine on fine coated paper on a schedule allowing only four days between the editorial deadline and the delivery of the last copy to U. S. subscribers."

Production rights have been granted up to date to paper companies in England, Scotland, Norway, Finland, Sweden, Denmark, Switzerland, and France. Negotiations are pending for acquisition of these rights in Italy and Belgium. Three noted paper mill executives and engineers from Germany came to the Consolidated mills recently to study the process, and left eager to transplant the process to their own country.

Shipment of Swedish Sulphite for Marathon

Marathon Paper Mills Company's tissue division at Ashland, Wis., received a total of 6,000 tons of sulphite pulp direct from Sweden this season. It was carried on Canadian tugs and came in five cargoes. The total tonnage was somewhat below the quantity shipped in former years.

Through the cooperation of Ben H. Metternich, manager of the mill, practically all of the employees of the Ashland mill have been given a health test to detect the presence of tuberculosis. X-ray examinations will be made where employees reacted to the test, and proper treatment will be provided.

Mr. Metternich recently purchased an abandoned school property from the city of Ashland for $400. He is arranging to raze the building and construct an enclosed indoor skating rink for community recreation.

Fox River Navigation Closes

Movement of coal from the docks at Green Bay, Wis., to paper mills of the Fox River Valley has been stopped for the season, with the closing of navigation last week. Tugs and barges of the Fox River Navigation Company have been put up at Kaukauna, Wis., for the winter, and will be overhauled in readiness for the spring season.

Fall rains have improved the water power supply in all of the Wisconsin mill districts. The Big Eau Pleine reservoir of the Wisconsin Valley Improvement Company now holds 1,255,000 cubic feet, and the total in the other reservoirs along the Wisconsin River is now 7,082,000 cubic feet, as compared to 5,796,000 feet a year ago.

Kimberly-Clark Benefit Assn. to Meet

Members of the Kimberly-Clark Mutual Benefit Association, made up of employees of the Kimberly-Clark Corporation's mills in Wisconsin and at Niagara Falls, N. Y., will hold a primary election December 6 for representatives to serve on the governing board. The election from this slate of nominees will be held December 13. Each mill is represented on the board by committeemen.

Two more prominent newspaper advertisements of a series have been published by the Kimberly-Clark Corporation from its main offices at Neenah, Wis., over the signature of S. F. Shattuck, vice-president. They continue the discussion of the company's labor relations. One points how the strict adherence to the Wagner Labor Relations Law becomes a technical bar to the type of human relationships that have existed in the company for many years. It points out that a father who worked his way up from a mill hand to a mill manager cannot discuss with his son, also in the company's employ, the matter of membership in a labor organization, or of other parents and sons or older and younger brothers. "The silence demanded by one's desire to comply with the (Wagner) law," says Mr. Shattuck, "can only breed suspicion, and suspicion is the destroyer of mutual confidence."

The other advertisement deals with the free discussion policy of employees and management, and the restraints placed upon it by the new legislation. Mr. Shattuck says: "We have gotten a lot of sound education out of the countless hours of debate and

discussion with representatives of employees these past four years. There are doubtless many employees who can also say as much. As a result of this relationship, we believe the Kimberly-Clark organization is now governed by fairer, more liberal company policies (we call them standard instructions) than this or any other management could work out by themselves."

The concluding statement says: "With changing conditions, it will become necessary for management, on its own initiative, to modify standard instructions, or add new ones. These changes or additions cannot, under existing conditions, be made through formal collective bargaining. Such changes will be made, however, only after advice and counsel with the men and women who are to live under the new or altered instructions."

Kimberly-Clark Co. to Entertain Salesmen

Sixty-five salesmen of the International Cellucotton Products Company, Chicago, including representatives from England and Canada, will be guests of the Kimberly-Clark Corporation Wednesday, December 8. They will arrive at Neenah, Wis., on a special railroad car. They will be escorted to the company's mill at Kimberly, Wis., where they will observe the manufacture of sulphite pulp and paper. In the afternoon they will visit the Lakeview mill at Neenah where Kleenex and Kotex are manufactured. A sales conference will be held at the corporation's main office, and the day will conclude with a banquet at the Valley Inn.

High School Students Visit Paper Institute

Senior high school students and their instructors within a radius of 100 miles enjoyed a tour recently of the Institute of Paper Chemistry at Appleton, Wis. The visitors were guests of Lawrence College at Appleton during the opening of its new chemistry laboratories. They heard lectures and inspected equipment, and then visited the Institute, which is affiliated with the college.

Riflemen Disconnect High Tension Wires

The services of sharpshooters were used to disconnect high tension wires from a steel tower wrecked in a windstorm at Green Bay, Wis. The line conveys power from the Northern Paper Mills hydro-electric plants at Amberg, Wis., to Green Bay. Using telescopic sights, the riflemen severed the lines and brought down the tower, after it was determined the lives of linemen would be endangered if they ascended it. Temporary wooden poles have been put up to carry the lines. Current was supplied from the Wisconsin Michigan Power Company during the power interruption so it was not necessary to shut down the mills.

H. L. Thompson To Be General Manager

[FROM OUR REGULAR CORRESPONDENT]

WATERTOWN, N. Y., November 29, 1937—Announcement is made here of the appointment of H. L. Thompson, of this city, to the position as general manager of the Coty Machine Company. He started with the company as a draftsman and has been connected with it for several years. An official of the concern stated that his promotion represents recognition of his past efforts to promote the best interests of the company and his many friends.

Dinner to Isaac Gilman Dec. 8

General James E. Harbord, urging community-wide cooperation in appeals to help the sick and needy, last week accepted membership on the committee arranging a dinner in tribute to Isaac Gilman as an appreciation of his lifelong devotion to philanthropic and communal causes. The General was one of 125 men prominent in public life and in the paper, pulp, bags and twine industries to accept the invitation of Alfred Bleyer, dinner chairman.

Other outstanding committeemen include J. David Stern, publisher of the *New York Post*; Israel Friedkin, publisher of the *Jewish Morning Journal;* B. Charney Vladeck, *Jewish Daily Forward;* Alex Calder, of the Union Bag and Paper Company; and Henry Nias, of the Lily Tulip Cup Corporation.

Mr. Nias is also serving as chairman of the executive committee.

The dinner, which will climax efforts of the Paper Industries Division of Federation to reach its quota in the $6,250,000 New York-Brooklyn Federation Campaign, will be held Wednesday evening, December 8, at the Hotel Commodore.

Mr. Nias announced that he expected more than 500 persons to be present. Some 300 reservations have been received to date, he said, and several hundred more will come within the next few days.

"No event in the paper, pulp and twine industry," Mr. Nias added, "has greater communal significance or has aroused more interest than the dinner to Mr. Gilman, who for fifty years has been in the forefront of our industry. For twenty years he has been leader of the paper industry division of Federation and one of its most enthusiastic workers."

Co-chairman with Mr. Bleyer of the dinner committee is Sol Ash. Other chairmen and co-chairmen of trade units are Henry Kurniker, chairman arrangements; Maurice Rosenfeld and Jacob Schorsch, associate chairmen; pulp group: Louis Calder, Morris Gintzler, D. Samuel Gottesman, Harry Hughes, Maurice London, co-chairmen; paper bag group: Walter D. Krissel, Benjamin Mintz, Al Newman, William Salzman, Heyman Schrier, co-chairmen; coarse paper group: W. Norman Frenkel, Jacob P. Galewitz, Herbert J. Grey, Morris Heller, Benjamin Kushel, M. M. Marcuse, Jules Stille, George Stoll, Jack Weill, Max Weill, co-chairmen; cosmopolitan association: David Kasson and M. Schwartzapel, co-chairmen; metropolitan association; Michael Posner, Louis Silfen and Arthur Stein, co-chairmen; paper stock: Abner Koplick, chairman; export: Bernard Sharp, chairman; paper board: Abraham Herman and Jack Sincoff, co-chairmen; specialties, William Eisner, chairman; and Abraham Mazer, treasurer.

Rhinelander Purchases Refrigerator Plant

RHINELANDER, Wis., November 29, 1937.—Purchase of the Rhinelander Refrigerator Company's plant last week by the Rhinelander Paper Company was announced by Folke Becker, president. For the time being the buildings will be used for warehousing purposes. It is contemplated, Mr. Becker states, that as demands on conversion facilities for laminated glassine and coated glassine increase, these operations may be transferred to the newly acquired plant. Some reconditioning of the building is being undertaken, chiefly repairs to the roof.

Chicago Trade More Optimistic for Future

Paper Distributors See In Low Stocks On Hand Signs of Improved Demand Soon — Federal Reserve Reports On Employment — Parer Market Situation Analyzed — Link-Belt Report Changes — Other Trade News.

[FROM OUR REGULAR CORRESPONDENT]

CHICAGO, Ill., November 29, 1937.—The Chicago paper market continued in a very narrow and restricted trend during the week. Some improvement was reported in certain lines, due more, however, to particular orders and not to any definite upturn in the market. Such sales gave the market a very spotty appearance. There continues to be a strong local feeling that business is bound to turn upward as jobber stocks continue to go lower and lower. Meanwhile, local figures from the distributing concerns show October of this year better than last year. The basic market conditions continue about the same, with prices holding in a comparatively firm range.

No changes are noted in the fine paper market although sufficient good orders were reported during the week to provide the "spotty" condition noted above. Book and cover papers showed no disposition to go outside the narrow range. Groundwoods were about the same. The newsprint price situation prevailing this coming January 1 is having some slight effect on local demand in an upward way. Kraft papers are little changed. Waste papers are very dull with little business being placed either way.

Federal Reserve's Employment Report

Paper and printing concerns in Wisconsin, Michigan, Iowa, Illinois and Indiana, gave only a fair account of themselves during the week of October 15 as compared to September 15, according to the current report coming from the seventh Federal Reserve District. The 706 reporting paper and printing firms listed 81,414 wage earners for the week ending October 15, as compared to September 15, a decline of 0.8 per cent for the period. These wage earners earned $2,330,000 or an increase of 1.3 per cent over remuneration for the week ending September 15. The figures for the ten groups in the total manufacturing group indicated a 2.8 per cent increase in wage earners and a 7.3 increase in earnings for the same period. The paper and pulp industry was reported by the seventh federal reserve district to be lower in October than either a month or a year previous.

Link-Belt Personnel Changes

The Link-Belt Company, important suppliers to the paper industry, this week announced four personnel changes as follows: H. L. Hoefman has been appointed manager of the Link-Belt plant and sales office at Atlanta, Georgia, to succeed Mr. I. H. Barbee, deceased. Mr. Hoefman has been with Link-Belt for 17 years and since 1935 has been manager of the Detroit office. G. A. Paige will succeed Mr. Hoefman at Detroit. He has been district sales manager at Pittsburgh and has also spent 17 years with his company. L. O. Millard will take Mr. Paige's place at Pittsburgh. Since 1933 he has been district sales manager at Cleveland. P. V. Wheeler has been appointed district sales manager at Cleveland. He has been associated with the Cleveland office since 1921 when that office was opened and has been an important factor in its conduct ever since.

Zellerbach Issues New Broadside

The Midland Paper Company division of the Zellerbach Paper Company, 560 West Lake street, has issued a new broadside from the Kimberly-Clark Corporation describing Kleerfect printing papers. With an initial "teaser" word of "Listen" on the first cover, Kimberly-Clark completes the sentence with "To Your Printer When he Suggests Kleerfect" and makes the tie-up complete with illustrations of radios and suggests a careful study of the reproductive qualities of the paper. The specimen is printed on Kleerfect E.F.25 x 38-70 pound basis.

Butler Paper Co.'s New Price Sheets

The J. W. Butler Paper Company has recently issued new price sheets showing a number of changes and a listing of several new lines. On certain lines of bristols, cards and binders covers the prices are revised upward while prices on specific board items are quoted downward. The Butler organization has also listed new items including white wove and laid envelopes in Keith's Landmark Vellum and also a new and popular line of Gloss Ink Litho.

Cromwell Paper Co.'s Export Trade Improves

A considerable improvement in its export business is noted by the Cromwell Paper Company with sales in Cromwell's Special Prepared Tympan showing commendable increases. During the past few weeks the Chicago concern has also had the privilege of entertaining a well known paper merchant of Capetown, South Africa, Mr. Evelyn Haddon of the firm bearing his name. Mr. Haddon spent a great deal of time carefully inspecting the recently enlarged and modernized Cromwell plant.

Chamber of Commerce Honors Business Firms

The Chicago Association of Commerce recently devoted a special meeting and the curernt issue of its publication "Commerce" in honoring business firms in Chicago for a century. While no paper concern reached that mark, three well known Chicago concerns were given honorable mention. These three were the J. W. Butler Paper Company which was organized in 1844; Bradner Smith & Company, organized in 1852 and the Messinger Paper Company which began business in 1865 as the G. R. Noyes organization.

Oliver United Filters to Exhibit

Oliver United Filters Inc., will have a very unique and interesting display at the coming Chemical Show. It will be a booth that has never in the past been duplicated and will make it very easy for engineers with filtration problems to discuss them with Oliver United engineers.

Quebec Government Opposes Price Cutting

Premier Duplessis Asserts Quebec Government Will Not Permit Price Slashing of Newsprint — Bathurst Co. Completes New Power Plant — Newsprint Exports for October Lower Than September, But Above 1936.

[FROM OUR REGULAR CORRESPONDENT]

MONTREAL, Que., November 29, 1937.—Premier Duplessis, speaking on behalf of the Quebec Government has issued another warning that the Government will not permit the newsprint industry to be imperilled by price slashing, adding that the Government has plenty of power to bring recalcitrant companies into line. He indicated that a newsprint company having hydro-power interests might be tempted to cut newsprint prices because it could make up the revenue by the sale of hydro-electric energy. That, at any rate, is the inference drawn from a speech by him before Montreal engineers, in which he said he believed that a newsprint company should not have its attention diverted from forestry development because of its interests in electricity, "because," said the Premier, "too many cooks spoil the soup." Also, the temptation was that a company interested in electricity contracts, as well as in the pulp and paper business, might be tempted to slash prices of one commodity, to the detriment of its rivals and the people of the province, and make it up with the other commodity.

The Premier further intimated that three idle mills might soon be re-opened, namely the Consolidated Paper Corporation mill at Cap Madelaine, the Abitibi mill at Beaupre, and the Quebec Pulp and Paper Corporation mill at Chicoutimi.

Bathurst Company Completes Plant

The Bathurst Power and Paper Company has recently completed a new high pressure steam and power plant which is now in operation, and which assures an uninterrupted and efficient supply of power at all times for the use of its mill at Bathhurst, N. B.

R. L. Weldon, president of the company, stated that shortly after the start-up of the new power plant a production record of some 320 tons of its various products in 24 hours was made by the mill. The company's products consisting of kraft liner board, newsprint paper, box boards and sulphite pulp are being shipped to all parts of the world. The company's capacity of its products for sale is now over 100,000 tons per annum.

Newsprint Exports

A return just issued by the Dominion Bureau of Statistics shows that Canada's exports of newsprint in October, while well ahead of the total for October, 1936, were lower than in September of this year. The total for the month was 6,046,507 cwt., valued at $11,167,970, as compared with 6,173,095 cwt., valued at $11,303,766 in September, and 5,614,653 cwt., valued at $9,891,609 in October, 1936. For the seven months of the fiscal year to the end of October the exports of newsprint amounted to 41,068,673 cwt., valued at $75,721,383, as compared with 35,709,949 cwt., valued at $61,960,708 in the similar period of 1936. Total wood pulp exported for the month amounted to 1,884,42 cwt., valued at $4,520,012, as compared with 1,347,621 cwt., valued at $2,879,191 in October, 1936. For the seven months ending October total exports of wood pulp amounted to 10,525,998 cwt., valued at $25,831,738, as compared with 8,978,-030 cwt., valued at $18,575,300 in the similar period of last year.

Government Paper Awards

WASHINGTON, D. C., December 1, 1937—The Government Printing office has announced the following paper awards.

Barton, Duer & Koch Paper Company will furnish 36,000 pounds of No. 2 kraft wrapping paper in 36 and 39 inch rolls at 4.13 cents per pound, bids for which were received on November 10. The same firm will also furnish 19,638 pounds (45,000 sheets) of 34 x 50 inch, 100 per cent rag, white chart paper at 21 cents, bids for which were received on November 8. Old Dominion Paper Company will furnish 21,000 pounds (62,500 sheets) of 32½ x 48¼ inch, 100 per cent rag white ledger paper at 20.94 cents per pound and Reese & Reese, Inc., will furnish 5,100 pounds (100,000 sheets) of 17 x 28 inch yellow safety writing paper at 12.6 cents. Bids for these items were received on November 3.

John F. Post, Inc., will furnish 34,500 pounds (300,000 sheets) of 38 x 48 inch light weight M.F. book paper at 6.8 cents per pound, bids for which wre received on October 29.

The Printing Office received the following bids for 150,000 pounds of supercalendered book paper; Perkins-Goodwin Company, 5.57 cents; John F. Post, Inc., 5.57 cents; Cauthorne Paper Company, 5.548 cents; Paper Corp. of U. S., 5.57 cents; Marquette Paper Company, 5.57 cents; Old Dominion Paper Company, 5.6089 cents; Reese & Reese, Inc., 5.57 cents; Barton, Duer & Koch Paper Company, 5.57 cents; Stanford Paper Company, 5.57 cents; Dobler & Mudge, 5.57 cents; Whitaker Paper Company, 5.57; and R. P. Andrews Paper Company, 5.57 cents.

For 6,700 pounds (50,000 sheets) of blue M.F. book paper; Mathers-Lamm Paper Company, 8.2 cents; Stanford Paper Company, 7.5 cents; and Barton, Duer & Koch Paper Company, 6.67 cents.

For 36,288 pounds (1,008,000 sheets) of 50 per cent rag litho-finish map paper; Barton, Duer & Koch Paper Company, 11.67 cents; Reese & Reese, Inc., 14.24 cents; R. P. Andrews Paper Company, 12.2 cents; Aetna Paper Company, 14.268 cents; Stanford Paper Company, 12.6 cents; Whiting Paper Company, 12.99 cents; Virginia Paper Company, 12.6 cents; and Paper Corp. of U. S., 12.89 cents.

For 15,050 pounds (50,000 sheets) of 75 per cent rag, litho-finish map paper; Reese & Reese, Inc., 16.02 cents; R. P. Andrews Paper Company, 14.42 cents; Stanford Paper Company, 15.25 cents; Whiting Paper Company, 15.47 cents; and Virginia Paper Company, 15 cents.

Philadelphia P. T. A. Holds Study Course

Second Annual Paper Salesmen's Study Course Opened November 17 With 165 Students Enrolled — President Freile Addresses Class On Importance of Paper Industry—Paper Firms Represented—Lecture Program.

[FROM OUR REGULAR CORRESPONDENT]

PHILADELPHIA, Pa., November 29, 1937.—With the tap of the gavel held by President Ormond Freile, the Paper Trade Association of Philadelphia inaugurated its second annual Paper Salesmen's Study Course on November 16th in the Franklin Institute on the Benjamin Franklin Boulevard. Those of us who were privileged to attend last year's Study Course will recall the high quality and happy blending of wisdom and wit of the lecturers and the relevancy of their topics to the manufacture of paper.

This year's class with attendance of 165 students, included in which are nine young ladies, are employees of A. Hartung & Company, Hooper Paper & Twine Company, Charles Beck Company, Raymond & McNutt Company, Schuykill Paper Company, J. L. N. Smythe Company, Bentley Paper Company, The Thos. W. Price Company, Molten Paper Company, Garrett-Buchanan Company, Paper House of Pennsylvania, Quaker City Paper Company, Wilder Bros. Company, A. M. Collins Mfg. Company, D. L. Ward Company, Sabin-Robbins Paper Company, Terminal Paper Company, Wilcox-Walter-Furlong Paper Company, Hollingsworth & Whitney Company, Satterthwaite-Cobaugh Company, Penn Card & Paper Company, J. R. Howarth Paper Company, W. C. Hamilton & Sons, Dill & Collins Company, and Whiting-Patterson Comany.

Mr. Freile after announcing the rules and regulations to be observed during the various sessions, then, in his inimitable way, presented an epitomized outline of the value that will accrue to the students attending this Course, stressing the fact that the services of leading authorities in the industry had been secured to discuss the salient points of the manufacture and selling of paper.

He said, "I would like to go back some twenty odd years and have his opportunity to learn the business to which I have devoted my life under such inspiring leadership as you will have in this Course. Don't muff it. Get all you can out of it." He urged the class to give Mr. Hentz the same support, if not better than that given himself in the conduct of last year's Course.

William A. Hentz, chairman of the Educational Committee, welcomed the class and stated that "the object of the Course is to increase your value to your respective houses and yourself, and to help you attain that end we have indeed been fortunate in securing the services of upwards of twenty men—men who are experts in their field—to share this group meeting. Miss one lecture and you will miss a lot. There are 12 lectures on Paper Salesmanship by gentlemen whose keen knowledge, helpful, homey sayings will enable you to convey what you have learned, to the other fellow."

Joseph H. Miller, vice-president of Garrett-Buchanan Co., graphically portrayed the history of paper making, pointing out that the paper making machine can be traced back to France, from whence it was taken to London, and after a short time Fourdrinier Brothers—from which it takes its name—became interested in this great invention.

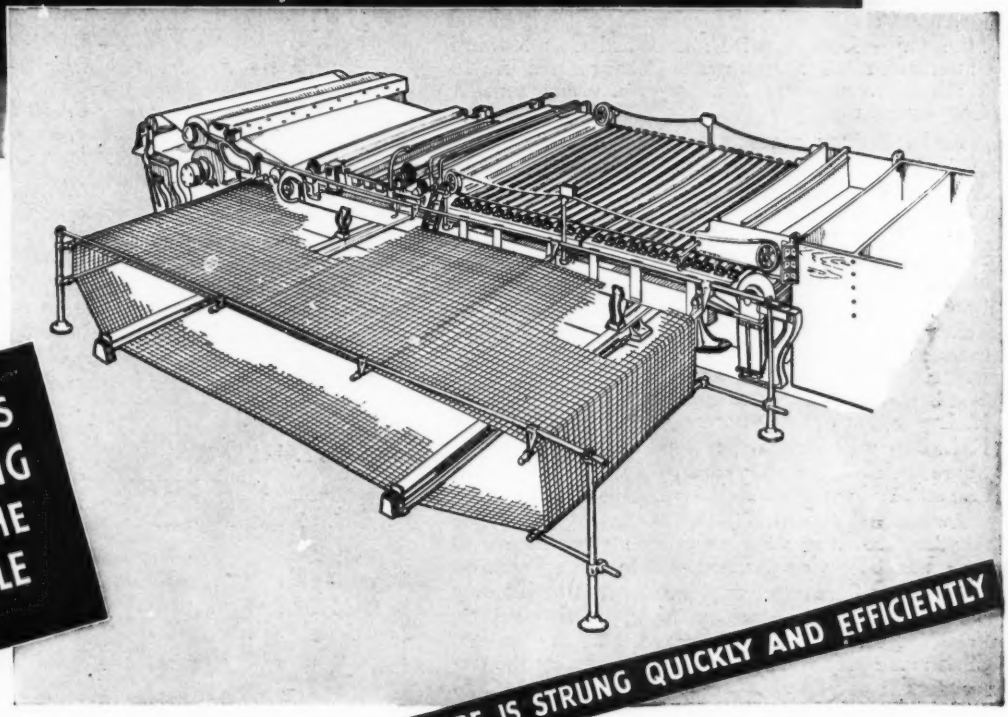
President Freile Addresses Students

President Ormond Friele, in his address, drew a picture of the paper industry "so that some conception of this great commodity, a very important and integral part of which paper salesmen are may be had. The paper industry represents an investment in the United States of $2,500,000,000 in realty, equipment, machinery, etc." After citing some very interesting statistical data, he said, in part, "Now, this is where the distributor fits into the picture. Taken collectively is the machine plus the man power that make possible for this huge manufacturing investment, and to that end the most economical method of distribution is to keep the cost of selling down to a place where as far as possible the consumption of these products can be maintained. The total production is approximately 24 million tons, of which the United States consumes 14,500,000 tons annually of all kinds—all of which makes us in these United States the largest consumers of paper in the world. Just to give you some idea of the amount of paper used in the publication of 'Gone With The Wind' there were 1600 tons of paper consumed in that one book up to the present printing. The paper industry is one of the most extensive in the United States from the standpoint of capital investment. No other type of manufacture is as extensive per unit of production as paper. The total investment is represented in 800 paper manufactories—large and small. In three days the average person consumed 326 pounds of paper. There is more paper consumed in this country than any other commodity except milk and water. It is obvious to see that this industry must be highly organized to a point where each individual part and integral part work as nearly perfect as possible. It is more and more apparent that the distributor will receive the greatest value ten years from now—he is going to be far more important than he is today. In attaining that importance he is going to fit into this organization representing this huge amount of money and take his rightful place in the distribution of this greatest of all commodities—paper."

Hugo H. Hanson Talks About Pulps

Hugo H. Hanson, president of W. C. Hamilton & Sons, lectured on "Manufacture of Pulps." He brought out the fact that pulp could be obtained from any growing plant because they all contain cellulose. He stated that the best known pure cellulose is cotton, however, he added, this has proven insufficient to cover the tremendous need so other sources had to be found. After explaining the three combinations—sulphite, sulphate and soda—which are used to reduce wood to pulp he passed out to each student samples of three pulps naming the grades of paper for which these pulps were suited. In conclusin,

IMPROVED BELOIT
REMOVABLE FOURDRINIER
PATENTED



WIRE IS STRUNG IN THE AISLE

WIRE IS STRUNG QUICKLY AND EFFICIENTLY

LOOK AT THESE ADVANTAGES

1 Wire strung in aisle (while machine is in operation, if desired.)

2 Remover beams installed, and Fourdrinier, *including couch* and breast roll, rolled out into wire loop, by power. Remover beams handled in and out mechanically.

3 Wire tightened into operating position, then Fourdrinier is moved back into position.

4 Fourdrinier pit can be washed out while wire is being installed.

5 Safest—most convenient—quickest method of installing Fourdrinier wire.

BELOIT IRON WORKS • BELOIT, WISCONSIN

THE BELOIT WAY IS THE MODERN WAY

BELOIT IRON WORKS PAPER MACH'Y BELOIT, WIS. U.S.A.

Mr. Hanson very ably answered questions put to him by the students.

Members of Educational Committee

Members of the Educational Committee aside from Messrs. Freile, Hentz, and Miller are W. B. Killhour, president, Quaker City Paper Co., and Mrs. Doris E. Lewis, executive secretary of the Paper Trade Association of Philadelphia. The Associated Trades Committee include William A. Meeks, manager, Typothetae of Philadelphia, Hugh H. Hanson, president, W. C. Hamilton & Sons and Wm. R. Maull, vice-president, Dill & Collins, Inc.

Notably present at this opening session, among the executives from paper houses were George K. Hooper, president, Hooper Paper & Twine Co. and a former president of The Paper & Cordage Association of Philadelphia; Lee Johnson and C. A. O'Neill, managers, respectively, Wrapping Paper Division and Fine Paper Division of D. L. Ward Co.; Howard Satterthwaite of Satterthwaite-Cobaugh and A. R. Williams, manager of Fine Paper Division, Quaker City Paper Co.

At the regular monthly luncheon meeting of the Philadelphia Paper & Cordage Association, held in Adelphia Hotel on November 19th, the Nominating Committee composed of Harry S. Platt, George K. Hooper, Sam Shyrock, John Andrews and John S. Heverly, announced the nominees for officers to be elected for 1938. Those nominated are President, George H. Miller, vice-president, Garrett-Buchanan Co., Vice-president—Fred I. Brower, Atlantic Gummed Paper Corp., Treasurer—T. W. Monteith, J. E. Fricke Co., and Secretary—Jack Shinners, Acme Specialty Sales Co. For Directors—E. K. Lay, E. K. Lay & Co.; James Andrews, Schuykill Paper Co.; E. L. Richards, Buffalo Envelope Co.; Sam Shyrock, Shyrock Bros.; J. R. Howarth, J. R. Howarth Paper Co., and William Hendrie Lloyd, Allied Paper Mills.

An unusual departure in the election of officers for this Association was made by mailing out ballots to each member with instructions to either confirm Nominating Committee appointees or name his own choice and return ballots by 'noon, December 11th. President E. K. Lay announced that the annual Christmas Party which each year is given by the Association to one hundred needy children, will be held in the Adelphia Hotel on Thursday, December 23rd.

Lecture Program

The program of lectures announced by the Committee, follows:

November 30—*"To See Is to Learn"*—Visit to mill of W. C. Hamilton & Sons at Miquon, Pa.

December 7—*"Putting the Pulp Over the Fourdrinier"*—William R. Maull, vice-president, Dill & Collins, Inc.

"The Cylinder Machine"—Leonard Fitzgerald, Hummell-Ross Fibre Corporation.

"Handmade and Mouldmade Papers"—Norbert A. Considine, president, Paper House of Pennsylvania.

December 14—*"Through the Finishing Room in Four Scenes"*—Book Paper, Charles Stallman, sales manager, P. H. Gladfelter Co.; *Writings,* A. Millard Daniels, vice president, L. L. Brown Paper Company.; *Papeteries,* Harry Chadwick, Crane & Co., Dalton, Mass.; *Wrappings,* Spurgeon Spangler, Schmidt & Ault Paper Co.

January 4, '38—*"The Romance of Wrappings"*—W. B. Killhour, president, Quaker City Paper Company; Chet A. Spaulding, assistant secretary, National Paper Trade Association.

January 11—*"Moving Pictures of Paper Making"*—Union Bag and Paper Corporation (Pictures of Savannah Plant); W. O. Rogers, Jr., New York Division; T. A. Lawley, Philadelphia Division; Hammermill Paper Co., Harold A. Peckham.

January 18 — *"Sales Ammunition" — Blottings,* Morrison Moose, Albemarle Paper Manufacturing Company; *Cardboards,* Hubert S. Foster, Wheelright Papers, Inc.; *News Family,* W. G. Shorter, International Paper Co.; *Uncoated Book,* Joseph E. Plumstead, secretary, Jessup & Moore Paper Company.

January 25—*"More Sales Ammunition"—Coated Paper and Why,* Wilson D. Rogers, Oxford Paper Company; *Cover Paper,* Gilbert P. Bothwell, sales manager, Cover Division, Hammermill Paper Company; *Writings,* Frederick W. Hastings, Philadelphia manager, American Writing Paper Corporation.

February 1—*"Science and Ethics"—The Laboratory and Its Relationship to Paper,* Dr. H. C. Schwalbe, Dill & Collins, Inc.; *Credit Bureau Operation,* LeRoy S. Bishop, treasurer, Paper Trade Association of Phila.; *Market Relations,* Ormond Friele; *Quiz Papers,* William Hentz.

February 8—*"The Romance of Printing Paper"*—Henry Hoke, executive manager, Direct Mail Advertising Association.

February 15—*"Winning Your Opportunity"*—Hamilton R. Disston, instructor on public speaking, vice president, L. H. Gilmer Company.

March 1—*"The Art of Paper Salesmanship"*—Charles H. Barr, advertising counsel for Millers Falls Paper Company, and Parsons Paper Co.; Address, Ormond Friele, president, Paper Trade Association of Philadelphia.

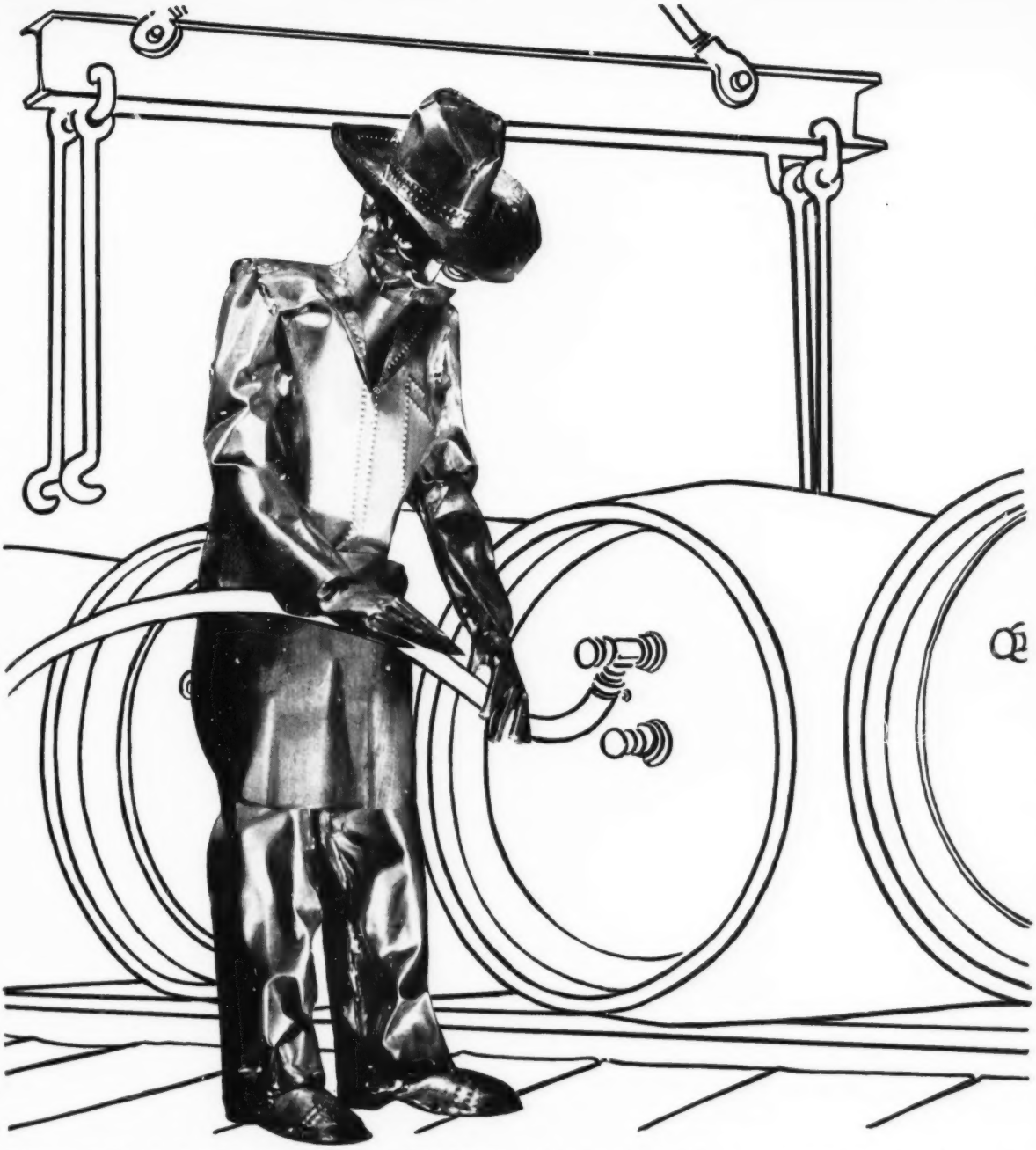
Crane Co. Forms Research Division

Formation of a division of engineering and research by Crane Co., Chicago, with L. W. Wallace, head of engineering research for the Association of American Railroads, as director, effective December 1, has been announced by Charles B. Nolte, President of Crane Co. The new Crane division will comprise the existing division of research and development and the product engineering department of the company.

"The new division has been formed to co-ordinate all engineering activities of the company," said Mr. Nolte, "and to further its progress in diversified fields. The importance and growth of this technical work have proven the advisability of maintaining a complete and well-staffed engineering division, free from all responsibilities except those relating to engineering, research, design and experimental work."

Mr. Wallace, who will be directly responsible to President Nolte, will direct the originating of new lines of products, the development of inventions and patents and the maintenance and improvement, if possible, of existing Crane products.

These activities will include the operation of chemical, metallurgical, oil, steam, air, hydraulic, heating, plumbing and other research laboratories. The enlargement of the laboratories and the installation of new laboratory equipment are about completed, having been in progress for some time.



EBG GETS A CLEAN BILL OF HEALTH . . . CONTAINERS GIVEN HYDROSTATIC TEST. *All containers —cylinders, drums and tank cars—are given hydrostatic tests regularly to insure complete safety in handling and shipping. A clean bill of health is insisted upon at EBG. It is the reason behind the exacting EBG system of cleaning and reconditioning of containers. .and it accounts for the completely efficient results that EBG Liquid Chlorine, produced to rigidly maintained standards of purity and uniformity, gives wherever it is used.*

•

ELECTRO BLEACHING GAS COMPANY
Main Office: 60 East 42nd Street, New York, N. Y.
Plant: Niagara Falls, N. Y.

EBG Liquid Chlorine
FIRST IN THE COUNTRY

Financial News of Pulp and Paper Industry

Wisconsin Power Asks Permit to Sell First Mortgage Bonds—Kimberly-Clark Vote Special Dividend On Common Stock — Marathon Registers Preferred Shares—Moloch Co. In Receivership — Other Financial News.

New York Stock Exchange

High, Low and Last for the Week Ending December 1, 1937

	High	Low	Last
Armstrong Cork Co.	39⅞	32¾	39
Celotex Corp.	26½	22¼	26½
Celotex Corp., pf.	62	57	62
Certain-Teed Products Corp.	9¾	7¼	8⅜
Certain-Teed Products Corp., pf.	35½	28	32¼
Champion Paper & Fibre Co.	28⅜	25⅜	28
Champion Paper & Fibre Co., pf.	105	104½	104½
Congoleum-Nairn Co.	25½	22¼	25
Container Corp. of Amer.	15⅛	13	13¾
Continental-Diamond Fibre Co.	9	7½	7¾
Crown-Zellerbach Co.	12¼	9⅜	11½
Crown-Zellerbach Co., pf.	71	70	71
Flintkote Co.	19¾	17	18⅛
Robert Gair	5⅜	5	5
Robert Gair, pf.	22	20½	21
International Paper & Power	11⅜	9¾	10⅛
International Paper & Power, pf.	43⅜	39	41¾
Johns-Manville Corp.	80½	70	77½
Kimberly-Clark Corp.	21½	21½	21½
MacAndrews & Forbes	30¾	30	30
Masonite Corp.	34½	29	32
Mead Corp.	15¼	12	14¼
Mead Corp., pf.	60	59⅛	60
Paraffine Companies, Inc.	41	37	40
Ruberoid Co.	24	19	24
Scott Paper Co.	37⅜	34½	37
Sutherland Paper Co.	19	18	19
Union Bag & Paper Corp.	10⅞	10	10¼
United Paperboard Co.	6	5¼	5⅜
U. S. Gypsum Co.	68½	56	65½
U. S. Gypsum Co., pf.	160	157	160

New York Curb Exchange

High, Low and Last for the Week Ending December 1, 1937

	High	Low	Last
American Box Board Co.	10¼	8¾	10¼
Brown Co., pf.	33	28½	32
Great Northern Paper	31⅛	31⅛	31⅛
St. Regis Paper Co.	4	3¾	3¾
St. Regis Paper Co., pf.	66	66	66
Taggart Corp.	5	4¾	4¾

Wisconsin Power Asks for Stock Permit

[FROM OUR REGULAR CORRESPONDENT]

APPLETON, Wis., November 29, 1937—Applications have been filed with the Wisconsin Public Service Commission, the Michigan Public Utilities Commission, and the federal securities commission at Washington by the Wisconsin Michigan Power Company, a North American subsidiary, seeking permission to sell $2,000,000 worth of 3¾ per cent first mortgage bonds and $700,000 in 3 per cent serial notes. The proceeds will be used to purchase the two hydro-electric plants at Chalk Hills and White Rapids, Mich., owned by the Northern Paper Mills, Green Bay, Wis. The purchase price is $2,350,000.

An application also has been filed with the federal power commission at Washington for authority to make the purchase of the two plants on the Menominee River, with their transmission lines to Green Bay. A hearing has been set by the commission for December 4 in Washington. Applications for purchase also are pending with the Wisconsin and Michigan commissions.

Brown Groups Have Conference

Representatives of all committees of Brown Company security holders met yesterday with the company representatives to discuss the plan of reorganization and to reconcile divergent points of view about it. This was the first joint meeting of all interests.

Serge Semenenko, representing the Adams bondholders' committee; Lee S. Buckingham, representing the Buckingham bondholders' committee; Robert Cook, representing the general creditors' committee; Edward Osgood, representing the preferred stockholders' committee, and Orton B. Brown, representing the Brown Company, announced jointly that progress had been made and that further meetings were to be held forthwith, at which definite steps would be considered to bring about complete cooperation.

Buy Fitzburgh-New Haven Corp

The New Haven Pulp and Board Company, New Haven, Conn., announces the purchase of the equipment of the Fitzhugh-New Haven Corporation, which company has for the past several years leased space in buildings owned by the New Haven Pulp and Board Company. The company will specialize in the manufacture of the higher type of folding boxes requiring multi-color printing, varnishing, bronzing, etc., which will require the highest grade board, in which the New Haven Pulp and Board Company has specialized for many years.

Moloch Machine Co. in Receivership

[FROM OUR REGULAR CORRESPONDENT]

APPLETON, Wis., November 29, 1937.—Moloch Machine and Foundry Company, Kaukauna, Wis., which makes stokers and other equipment for paper mills, has been placed in receivership under Judge E. V. Werner, of the circuit court at Appleton, Wis. Walter Rohloff, manager of the firm, has been named receiver. Action was brought by E. G. Haas, and the directors agreed to the terms. Total indebtedness of the firm is listed at approximately $300,000, and its valuation at $200,000.

Kimberly-Clark Vote Extra Dividend

[FROM OUR REGULAR CORRESPONDENT]

APPLETON, Wis., November 29, 1937.—Directors of the Kimberly-Clark Corporation, Neenah, Wis., have voted a special dividend of 50 cents per share to increase to $2 the disbursements made to common stockholders this year. The dividend is payable December 14 to stockholders of record November 29. The directors also declared the regular quarterly dividend of 25 cents per share on common stock, payable January 3 to stock of record December 14.

Marathon Registers Preferred Stock

[FROM OUR REGULAR CORRESPONDENT]

APPLETON, Wis., November 29, 1937.—The Wisconsin Public Service Commission at Madison, Wis., has announced that its securities division has registered for resale in Wisconsin 12,000 shares of preferred stock of the Marathon Paper Mills Company, Rothschild, Wis. The stock is listed as outstanding.

Factoring for the Paper Industry

By Frederick M. Leonard[1]

It would be difficult to dispute the statement that an exceptionally large percentage of American Business concerns are manifestly in need of more cash resources. The reasons for, and the sure proof of this condition are all too numerous to discuss here, but the broadening of the work and the scope of the R. F. C. during the past few years is largely a Governmental recognition of this primary and underlying situation. Herein lies the importance of the problem, for the aggregate or sum total of annual turn-over of these hundreds of thousands of concerns, constitutes the commercial greatness of the country. If they succeed, the country is prosperous and general business is good, also vice-versa. If, therefore, they as a group contribute such an important part to the economic well being of America, a scientific study and survey, both of their financial needs and of the remedy to be applied is most timely and imperative.

This article discusses however, the relation of the paper industry only to this problem. The mills and the jobbers have recently passed through an era of sizeable profits. Pulp has been at a premium —kraft prices have soared—demand for board has maintained persistent—bonds, ledgers, linens have witnessed hardening prices. In fact the entire industry can look back upon the last twelve months as an era of good times, comparable in a large measure to other years before 1930.

Basic Facts

To maintain however, that the industry as a whole is on the way to a prolonged period of profits cannot be logically held without a careful survey of the actual conditions prevailing.

What are these basic facts.

1. Higher prices obtain for everything, which goes into the manufacture of paper and some predict even higher prices.
2. Competition is more keen than ever.
3. Costs much more to do business than heretofore.
4. Wages and salaries are advancing.
5. Greater volume must be done to make a profit.
6. The same amount of working capital is not sufficient to do the increased volume of business.

All this proves that whether the industry likes it or not, it is in the center of a period of quasi inflation.

Where will the paper industry turn when it finds the need for additional capital? The commercial loans of all the banks of the country are down to the lowest ratio in years and discussions with those who know, reveals the prevalent opinion that it is extremely doubtful whether they will be able soon to increase that ratio perceptibly.

There is therefore, one source alone, from which working capital can be obtained and that is through the factors.

Approximately five thousand five hundred American concerns, use annually to advantage, about one billion dollars of factoring money. This constitutes a financial operation of such sizable proportions that it patently has a tremendous influence upon American trade and without its availability there would be such a marked slowing down as to leave repercussions of curtailed sales and retarded development.

Tests Have Been Made

Less than one year ago, an article on factoring was written for this magazine. Factoring at that time was considered something entirely apart from the paper industry. A prophet always is at a disadvantage as he may speak only of future profits, but in the paper industry, the tests have now been made, have proved worthwhile and those who have taken advantage of factoring facilities, declare that factoring does pay profits—helps increase business—prevents credit losses—and saves discounts—enables close buying—makes quicker turnovers—provides a steady flow of liquid capital.

If a man of the very highest integrity, wealthy, a friend of long standing, and of sterling character, stepped into your office the first day of the month and said to you:

"I have been watching your business for years—it is growing—but it is plain to see that you have not enough working capital and I know that you always aim to build and expand. I know that raw materials, wages and taxes have gone up. You need some extra cash to properly operate—You owe considerable to the trade. This is what I will do for you: Here is a check for $18,000. Now as security transfer to me your last month's bills of $20,000. and put the notation upon your bills that you have sold them to me. They all know me as a man of integrity and that my intentions are to help you. Put this $18,000. cash in your bank and discount every bill that you owe at the highest discount and save all that money. I know your customers and I warrant to you, that their credit is good now up to the face amount of your bill against them and I personally assume that credit risk.—You are in no way responsible, for I will also see that these bills are collected when due. Now get to work and do not bother about anything else except producing and selling some more merchandise, for when these bills have all been collected, I will charge you 6 per cent for the use of the money, plus a reasonable service charge for advancing the money, warranting your customer's solvency and collecting the accounts for you. You will not have to worry about any note coming due at a definite date—there will be none—the advance is self liquidating. When the first of the month comes again, I will agree to do the same thing for you and for the following months, indefinitely. At the end of each month I will give you a check for the amount collected, above that advance, less the interest and service charge. I helped a friend this way years ago and what he saved in discounts and made by close buying because he had the cash to pay for it, plus his entire freedom from all worry and his ability to concentrate all his energies upon manufacturing and sales brought him such a profit

[1] President, Graphic Arts Board of Trade and Research Economist for James Talcott, Inc.

from increased business that he no longer needs me. You can do the same thing as he, if not better, because you know your line thoroughly and are a hustler."

No such kind hearted man can usually be found except once in a decade, who will make just such advances—to warrant credits and collect accounts receivable, first—because few such men exist and second—it would take a super-man plus the expense of a large private organization to do just this.

Performs Three-Fold Service

The commercial needs of hundreds of thousands of American concerns for just this comparable sort of service is what makes a factor so imperative today. For factors perform a three-fold function.

A. They buy the accounts receivable.

B. They assume the credit risks.

C. They collect the accounts.

This can more easily be interpreted, for the paper trade, as follows: A factor puts a company upon a cash basis. It buys for cash and sells for cash—therefore a factored company is always in a liquid position. Factors' cash permits the taking of all discounts which in itself represents a large net return. It also permits a company to go into the open market for its supplies and bid its cash against all offerings, thus obtaining special prices. Buying right is the first step towards success. When any concern is forced to pay even a small amount above the market price for its merchandise, such a concern is immediately at a commercial disadvantage, for its profits are cut and it cannot meet close competition. But, when a concern can go into the open market for its raw material, with the ability to pay immediate cash, experience teaches that this cash purchasing power, always enables the company to buy merchandise at a distinct saving. How to provide the average American business with the cash necessary to take advantage of this opportunity is but a part of the problem.

Factors' cash frees the executives of financial worries, such as meeting bills, payrolls, and other accumulating obligations, thus allowing them to concentrate upon their all important adjunct of manufacturing and selling. Experience has proved a thousand times that those concerns who devote all their attention to these two most important departments and leave to the factor all matters of finance, credits and collections are the concerns that are today making the greatest strides forward and who at the end of the year show the largest net return. Rapid turnover in accelerated form is the second step toward financial success.

A factor always lays stress upon increased sales, for thus the items of overhead is proportionately reduced which naturally adds to the annual profit. In this regard too much stress cannot be laid upon the continuity of flow of factoring cash. It is always there when needed and when needed most there is no lack for a factor most clearly recognizes seasonal requirements.

Factors are trained analysts — experts — specialists—for factoring is an exact science and employs no rule of thumb methods.

What Factors Will Want To Know

With most kindly intent and in order to be helpful they will seek to know from your accountants' figures, such matters as:

What kind of business do you conduct?
Have you been careless in your credits?
What has been your percentage of losses in the last three years?
On what terms do you sell?
Average rate of mark-up.
Trade competition, close or average.
Is your business seasonal or not.
Volume of average monthly business.
Percentage of total capital that is liquid.
Credit character of your customers.

No physician, no attorney could study each individual case brought before them with more care and analytical knowledge than a factor. Proof positive of the real lasting help given to their clients by the factors, is the fact that a large proportion of the textile industry is conducted by their assistance.

A business cannot succeed unless its production is kept at the highest point and its cost maintained at the lowest. It must also to be successful, have sufficient cash capital to properly buy the merchandise and to pay for the labor plus the general overhead.

Business Becoming More Specialized

America is becoming more and more a country of specialized businesses—companies which know how to produce at minimum cost, how to sell and to whom, and how to handle the accounts receivable so that there will always be sufficient amount of liquid working capital. Because of the excessive competition, each company must have an expert who knows all there is to know about his department, either the production, sales, credit or financing and it is rare where one company has at the head of these essential departments, men who are experts. The problems are so diversified and so difficult, that in a business of any size, the duties cannot overlap, otherwise there will be chaos.

A manufacturing man, as a rule, knows little or nothing about financing or credits. A sales manager is equally ignorant regarding the large details of finance and manufacture. It is at this point that a factor steps in to guide your finance department, your credit checking department and to provide cash so that your production men can go into the open market and get hold of the real bargains for cash.

Credit losses are an annoyance in most industries. They vary however, in different industries. They are more numerous among medium sized houses than among the large ones, because few of the medium sized houses have adequate credit departments or credit information which will prevent losses and still not handicap the sales department by over-conservative credit checking. Combined with the work of the credit department is the matter of collections and it is the work of an expert to transmute each month, the accounts receivable on the ledger into cash and into the check book and still keep the goodwill of your customers. When it is definitely understood that about 91 per cent of all American business is done upon a credit basis, one can clearly see the all prevailing problem which presents itself to any credit man, is the proper extension of credit. Therefore, it is most imperative that the credit department have at its head a specially trained expert.

When you engage the services of a factor, all of these great problems are lifted from your shoulders immediately and put upon theirs, and their years of training and broad knowledge of conditions puts them in a position to be of the very greatest benefit to you in preventing any losses whatsoever in your business.

Large Volume of Business Can Be Done

By the use of factoring money, a much larger volume of business can be done. It is seldom that a man or a company can make money unless they have cash with which to do it. Money is the life blood of industry, but needs most careful handling so that it will not be dissipated, but made to work for a company in a way that will bring ultimate profits.

Factors relieve you of risks incidental to credit checking. They attend to the collection of your accounts receivable. They discount your sales and make inventory loans, but more than all this, they are constantly with you to assist with their experience and their thorough knowledge of your industry. Sales have properly been called the mother of production, but financing is the very life blood of both.

Factors are human beings, real men. There is no trickery, no concealment. They are expert business builders. They tell you what they will do for you and lean over backwards to keep the very letter of their commitment. Their keenness, perception, general knowledge of commercial conditions, make them experts. Factors know much more than most bankers. They often can enlighten an executive about conditions in the executive's own industry.

Trade associations cannot solve these problems. Banks cannot help for one reason or another, for as mentioned above, the commercial loans of the banks, are at the present time only about 20 per cent of normal. Trade committees are at a loss to find a solution. It is primarily a matter of individual corporate education with the aid of a factor.

Often a paper man is pleased as he sees his volume of sales increasing—to him it means a successful business career—the turn of the tide. On the other hand as he scrutinizes his accountant's figures, he finds that increased costs of doing business (raw material, wages, taxes) have absorbed a major portion of his capital and that in order to do the increasing volume desired, additional cash must of necessity be supplied to the business.

Benefits of Factoring

Although the principle of factoring is centuries old and is termed an exact science, there is always something new to be said regarding the benefits of factoring. New Businesses needs, with the latest pressing problems of today have made factors alert to meet the changing times and demands and to provide new conveniences to users of their service.

To sum it all up for the paper industry, factoring in its modern application is a financial advancement which for a fixed rate, based upon sales volume;

A. Provides requisite working capital.
B. Precludes credit risks.
C. Without any enlargement whatsoever of the capital structure.
D. Without dividing or jeopardizing control.

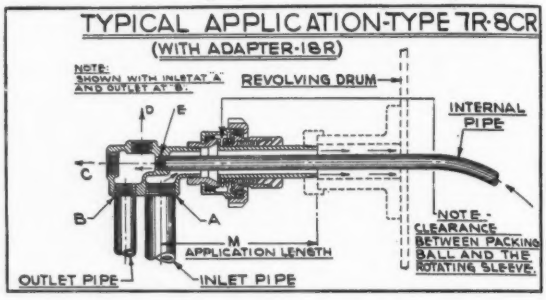
These advances have no fixed date for repayment since from the very nature of the transaction they are self liquidating. Thus is provided a continuing increment to the working capital of the company. It is well to note that conservative executives everywhere are more and more coming to see the adaptability of factoring to the Paper Industry as a whole.

Joint with Leak-Proof Flexibility

In order to provide leak-proof flexibility between the fixed steam supply and exhaust line and the revolving rolls it is necessary to fill three requirements.

First, the revolving member should revolve with a minimum of friction.

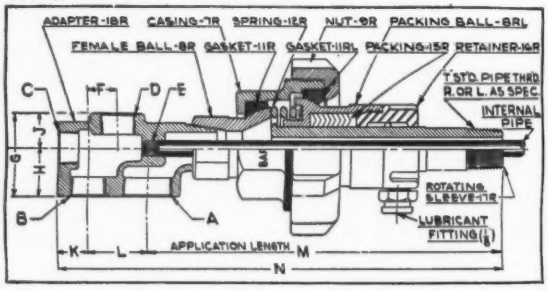
Second, longitudinal movement should be provided to take care of end play in the roller bearings, etc.



TYPICAL APPLICATION

Third, flexibility must be provided to take care of any eccentric movement of the rolling member, as well as any misalignment between the fixed supply line and the revolving member.

The Barco Manufacturing Company, 1801-15 Winnemac avenue, Chicago, has developed its new type 7R-8CR joint which is expected to provide these features with a minimum of expense; as for instance, the flexibility providing members are subject to very little wear as none of these flexing wearing parts revolve.



SECTIONAL VIEW

The only high speed moving part is the rotating sleeve, which not only takes care of the revolving motion, but provides substantial longitudinal adjustment.

With this new type of joint the universal adapter, 18R, is furnished, and which may be threaded in any of the various ways required.

Fast's Self-Aligning Coupling

A new catalogue issued by the Koppers Company, Bartlett Hayward Division, Baltimore, Md., describes in detail the Fast's principle and design of self-aligning coupling, which provides mechanical compensation for misalignment in shafts for the transmission of power.

Standard Shrinkage of Materials In the Strawboard Industry

By J. C. Cassel, C.P.A.

The strawboard industry gives a good example for the application of standard costs in determining the costs of materials used in the manufacture of the finished product.

The problems relating to the accounting of shrinkage of the raw materials in the strawboard industry present a more difficult question than in most industries where a definite formula can be applied.

Wheat straw is the principal raw material used in the process of the manufacture of strawboard. It has been determined that when the wheat straw is old and deteriorated by reason of the action of the elements it requires 25 per cent more straw to produce a ton of finished strawboard. There is also a shrinkage loss sustained in the process of manufacture coming chiefly from the beating and washing operation where foreign substances are removed from the straw. The older the straw the greater the shrinkage.

Some manufacturers follow the custom of making periodic eliminations of the weight of the straw considered unfit for paper making by examining the stacks and estimating the cubical contents of unfit straw and then distribute this shrinkage by means of a reserve keeping in mind the increased shrinkage occurring in the last few months of the straw year. To the mind of the author this plan seems to fail in one important point. The manufacturer should collect statistics showing the average number of pounds of straw and other materials consumed per ton of product for each straw year. When eliminations are made from the original weights at which the straw was placed in the inventory and the usage thereafter is computed in terms of the reduced weights, great difficulty will be experienced in stating the average usage of straw per ton of product for the season at the end of the period when all the old straw is used up in the process of manufacture. In stating the usage of straw per ton of finished product, it should be on the basis of the weights settled for in the purchase, instead of in written-down weights.

The accountants should make a forecast of the average price per ton of baled straw and the average quantity of straw to be carried on hand during the ensuing year, based on past experience. Likewise, the deviation in the actual consumption of straw per ton of product for the different months or quarters during the company's straw year should be established on the basis of past experience, and the depreciation should be distributed throughout the year in such a way as to make the straw cost of the finished product approximately the same throughout the year.

As a practical illustration, let us start with a straw consumption study made of one of the mills of a company engaged in the manufacture of strawboard. In this study a determination was made of the total tons of strawboard produced per month and the total number of pounds of straw consumed in the same month. From this information were obtained the pounds of straw used per ton of finished paper for each month. The study was extended to a period of three years. After the monthly table was completed, it was broken down into quarterly periods.

It was determined that when the price of straw remains constant, the average actual cost of straw varies between approximately 5 per cent to 15 per cent from the first to the last quarter of the straw year, due almost entirely to a variation in the age and condition of the straw. The manufacturer is justified in his attempt to spread this loss out more equitably over the product of the entire straw year, but straight depreciation of 1 per cent to 2 per cent per month of the straw on hand will not accomplish the desired result when the actual usage of straw is charged to material cost of finished paper.

Method of Using Standard Quantity on an Annual Basis

It is comparatively easy to change from other methods of accounting for the cost of straw to the standard cost basis or some modification of it. This article is concerned only with the distribution of the shrinkage factor over the entire straw year. Therefore, the question of establishing a standard price will not be discussed in any detail.

Under the method of using an annual standard quantity for straw usage specifications for the finished product may be prepared on the basis of the experience of three or four years and by using only original straw weights consumed per ton of product during the normal straw year. Care should be taken to study the inventory on hand at the end of the straw season and the end of the company's fiscal year. If an abnormal quantity of straw was on hand at the end of any particular season, it would be well to make some adjustment in the data for that year or use the statistics for some other year to arrive at an average straw consumption per ton of product.

The author has in mind one manufacturer that concerns himself only with the final average straw consumption for the entire year. The efficiency of the mill in reducing the shrinkage loss of straw in conversion, is therefore, measured carefully for the straw year by comparing actual straw consumption with the standard, but no definite comparative study of quantity of straw consumed per ton of product is made by months. It is believed strawboard manufacturers should develop a schedule showing a monthly standard consumption of straw per ton of finished product for each month of their fiscal year, changing the previous standard according to the average statistics of the actual usage. Causes for deviation from such a standard may be difficult to analyze. A few of these causes are as follows:

1. A greater quantity of old straw used in the mixture in process of manufacture in proportion to new straw will increase straw usage per ton of product.
2. Excessive rain and wet weather will increase the rate of deterioration of the straw.
3. Waste paper may be increased in the mixture in the beaters, thus reducing the straw usage.

4. Increasing the caustic soda or lime in the mixture may have caused a loss in the straw by having the fibers destroyed in the manufacturing processes or washed down into the sewers.

How to Handle This Cost Problem

The tabulation below illustrates how to handle this cost problem on the basis of the usage of straw per ton of product:

It is first necessary to arrive at the actual performance and set up the actual reserve based on the foregoing budgets. The following represents an illustration of actual results of the operation of the year for which the budget was set up.

TABLE I

OPERATING STATISTICS FOR YEAR ENDED JUNE 30, 19—

....		40,000.00	6 months 5,000 tons
Average inventory value of straw in yard and straw used—per ton.....		$8.00	
Inventory at beginning of year (July 1):			
Age of straw at paper mill from date of stacking			6 months
Quantity			5,000 tons
Cost value at average price of $8.00 per ton		40,000.00	
Reserve for deterioration or shrinkage of straw on basis of average age of 6 months at 1½% per month, or 9% per annum		3,000.00	
Market Value—cost less reserve for shrinkage		36,400.00	
Inventory at end of year (June 30):			
Age of straw at paper mill from date of stacking			5 months
Quantity			4,500 tons
Cost value at average price of $8.00 per ton		36,400.00	
Reserve for deterioration or shrinkage of straw at 2% per month of 10% of the straw on hand at June 30..		3,600.00	
Market value—cost less reserve for shrinkage		36,400.00	
Actual straw usage and cost per ton of product:			
First quarter	3,150 lbs.		$12.60
Second quarter	3,400 lbs.		$13.60
Third quarter	3,600 lbs.		$14.40
Fourth quarter	3,700 lbs.		$14.80
Actual tonnages of strawboard produced:			
First quarter	6,100 tons		
Second quarter	6,000 tons		
Third quarter	5,900 tons		
Fourth quarter	6,100 tons		

Tables II, III, IV, shown below, give the results of the following out the standard quantity method on an annual basis.

TABLE II

ACTUAL STRAW USAGE AND AVERAGE BUDGETED USAGE OF STRAW PER TON OF FINISHED PRODUCT, SHOWING COMPARISON BETWEEN BUDGET AND ACTUAL, STATED IN POUNDS

	Straw Usage per ton of finished product (Stated in pounds)		Comparison between budgeted average and actual	
Period	Actual	Budgeted Average	Under Budget	Over Budget
First quarter	3,150	3,456	306	...
Second quarter	3,400	3,456	56	...
Third quarter	3,600	3,456	...	144
Fourth quarter	3,700	3,456	...	244

TABLE III

STRAW SHRINKAGE ADDITIONS AND DEDUCTIONS IN STRAW COST UNDER STANDARD QUANTITY BASIS

Period	Average price of straw per ton	Comparison in pounds per ton of product: Budget over Actual	Comparison in pounds per ton of product: Budget under Actual	Shrinkage adjustment of Straw Cost: Per ton of Product Add—Deduct	Shrinkage adjustment of Straw Cost: For Total Production Number Add—Deduct	
First quarter...	$8.00	306	...	$1.224	6,100	$7,466.40
Second quarter.	8.00	56	...	.224	6,000	1,344.00
Third quarter..	8.00	...	144	.576	5,900	*3,398.40*
Fourth quarter.	8.00	...	244	.976	6,100	*5,953.60*
Net difference						541.60

TABLE IV

RESERVE FOR SHRINKAGE COST OF STRAW UNDER STANDARD QUANTITY METHOD

	Dr.	Cr.
Balance, July 1, 193—.....		$3,600.00
For provision in first quarter, 6,100 tons at $1.224 per ton.....		7,466.40
For provision in second quarter, 6,000 tons at $0.224 per ton.....		1,344.00
By reduction of actual straw cost in third quarter, 5,900 tons at $0.576 per ton....	$3,398.40	
By reduction of actual straw cost in fourth quarter, 6,100 tons at $0.976 per ton.....	5,953.60	
To charge annual variance of straw shrinkage		541.60
Balance, June 30, 193—.....	3,600.00	

Tables II, III, IV, show the results of the use of the standard quantity method when applied to the illustrative problems.

Conclusion

It should be the object of the cost accountant to record in his cost statement the straw cost per ton on a more uniform basis throughout the year. The standard quantity basis is undoubtedly the best plan for this purpose. The violent fluctuations in the per ton cost of straw without changes in the unit price when actual cost is used appear to the author to call for the kind of special treatment that the standard quantity method affords in order to eliminate the peaks and valleys in the actual cost curve. It is hoped this article will contribute some helpful research material to the strawboard industry as an aid in solving this interesting and perplexing problem.

General Cellulose in New Quarters

The General Cellulose Company, Inc., has moved into its new quarters at Garwood, N. J. The new building which is represented in the accompanying illustration, provides an increase of 100 per cent in

NEW GENERAL CELLULOSE BUILDING.

space over the quarters formerly occupied by the concern. The General Cellulose Company are converters and distributors of cellulose wadding and facial tissue catering to the hospital as well as the pharmaceutical and other lines of business who use cellulose for packing and shipping purposes.

J. P. Lewis Co. Makes New Products

[FROM OUR REGULAR CORRESPONDENT]

BEAVER FALLS, N. Y., November 29, 1937—The J. P. Lewis Company here is making a new product, luggage board, which is embossed. The company is putting on the market a number of new wet machine products of heavy paper board, including goods that are used mainly in industrial plants, besides making the regular run of Bristols and manilas. The manufacture of all of these is keeping the plant busy.

JOINT PRINTING COMMITTEE OPENS PAPER BIDS

(Continued from page 11)

38 and 38x48 ins. Min. order, one color, 5,000 lbs.

Stanford Paper Co	70 lb.	7.09c
	100 lb.	6.46c

Machine-Finish Book End Paper

No. 15—40,000 lbs., for waste leaves; flat, cut 25x38—160; the grain to run the 38-inch way.

Stanford Paper Co.	5.91c
Fitchburg Paper Co.	5.91c
Barton, Duer & Koch Paper Co.	5.91c
R. P. Andrews Paper Co.	5.91c
Aetna Paper Co.	8.35c
Paper Corp. of U. S.	5.91c

Offset Book

No. 16—200,000 lbs., 25x38—120; flat, cut 24x38, 26x32, and 38x48 ins.; grain as ordered.

Stanford Paper Co.	6.3c
Thomas F. Barrett & Son	6.3c
John F. Post, Inc.	6.3c
Whitaker Paper Co.	6.28c
James F. Walsh Paper Corp.	6.24c
Walker, Goulard Plehn, Inc.	6.3c
Barton, Duer & Koch Paper Co.	6.38c
Mathers-Lamm Paper Co.	6.3c
R. P. Andrews Paper Co.	6.3c
Aetna Paper Co.	6.3c
Paper Corp. of U. S.	6.3c
Butler Co.	6.3c

Antique Book

No. 17—300,000 lbs., 25x38—100 and 120; flat, cut 25x38, 33x43, and 38x48 ins.

Stanford Paper Co.	5.91c
Perkins-Goodwin Co.	5.91c
Fitchburg Paper Co.	5.91c
John F. Post, Inc.	5.91c
Barton, Duer & Koch Paper Co.	5.91c
R. P. Andrews Paper Co.	5.91c
Aetna Paper Co.	5.91c
Paper Corp. of U. S.	5.91c

Lightweight Machine-Finish Book

No. 18—25,000 lbs., 25x38—60; flat, cut 32x48 and 38x48 ins.

Stanford Paper Co.	6.81c
Fitchburg Paper Co.	6.92c
Barton, Duer & Koch Paper Co.	6.89c
R. P. Andrews Paper Co.	6.81c

50 Per Cent Rag Lightweight High Machine-Finish Book

No. 19—40,000 lbs., 25x38—60; flat, cut 32x48 and 38x48 ins.

Whitaker Paper Co.	14.27c

50 Per Cent Rag Antique Book

No. 20—100,000 lbs., 25x38—80; flat, cut 32x48 and 38x48 ins.

Whitaker Paper Co.	9.94c
R. P. Andrews Paper Co.	13.47c
Aetna Paper Co.	8.934c
Whiting Paper Co.	10.16c

No. 21—30,000 lbs., 25x38—80; flat, cut 22¾x31½, 29x41 and 31½x45½ ins.

Stanford Paper Co.	9.76c
Whitaker Paper Co.	9.94c
R. P. Andrews Paper Co.	13.47c
Aetna Paper Co.	8.934c
Whiting Paper Co.	10.16c

No. 22—60,000 lbs., 25x38—90; flat, cut any size, min. width 24 ins., max. width 42 ins.

Whitaker Paper Co.	9.46c
R. P. Andrews Paper Co.	12.97c
Aetna Paper Co.	8.134c
Whiting Paper Co.	10.16c

75 Per Cent Rag Laid Antique Book

No. 23—15,000 lbs., 25x38—140; laid marks to run the 24-inch direc- flat, cut 24x38 and 29x41 ins.; the tion of the sheet; the grain and chain marks to run lengthwise of the sheet.

Stanford Paper Co.	12.25c
Whitaker Paper Co.	12.27c
Barton, Duer & Koch Paper Co.	14.5c
R. P. Andrews Paper Co.	12.47c
Aetna Paper Co	11.234c

100 Per Cent Rag Antique Book

No. 24—5,000 lbs., 25x38—90; flat, cut 24x38 and 38x48 ins.; the grain to run lengthwise of the sheet. Min. order 5,000 lbs.

Whitaker Paper Co.	17.72c
Barton, Duer & Koch Paper Co.	17.5c
R. P. Andrews Paper Co.	16.37c
Lee Paper Co.	17.298c

No. 25—20,000 lbs., 25x38—140; flat, cut 24x38 and 38x48 ins.; the grain to run lengthwise of the sheet; min. order 10,000 lbs.

Whitaker Paper Co.	17.72c
Barton, Duer & Koch Paper Co.	17.5c
R. P. Andrews Paper Co.	16.37c
Lee Paper Co.	17.298c

Supercalendered Book

No. 27—700,000 lbs., 25x38—90; flat, cut 31¼x45½, 32x48, 34x44, and 38x48 ins.

Stanford Paper Co.	6.21c
Perkins-Goodwin Co.	6.21c
John F. Post, Inc.	6.21c
Whitaker Paper Co.	6.21c
Barton, Duer & Koch Paper Co.	6.21c
R. P. Andrews Paper Co.	6.21c
Paper Corp. of U. S.	6.21c

No. 28—200,000 lbs., 25x38—90; rolls, 28½ and 38 ins., wide (3-inch iron cores).

Stanford Paper Co.	5.85c
Perkins-Goodwin Co.	5.85c
Whitaker Paper Co.	5.85c
Graham Paper Co.	5.85c
Marquette Paper Co.	5.85c
Barton, Duer & Koch Paper Co.	5.94c
R. P. Andrews Paper Co.	5.85c
Paper Corp. of U. S.	5.85c

No. 29—600,000 lbs., 25x38—100; rolls, 38 ins. wide (3-inch iron cores).

Stanford Paper Co.	5.57c
Perkins-Goodwin Co.	5.57c
Whitaker Paper Co.	5.57c
Graham Paper Co.	5.57c
Marquette Paper Co.	5.57c
Barton, Duer & Koch Paper Co.	5.69c
Cauthorne Paper Co.	5.57c
R. P. Andrews Paper Co.	5.57c
Paper Corp. of U. S.	5.57c

No. 30—600,000 lbs., 25x38—100 rolls, 38 ins. wide (3-inch iron cores).

Stanford Paper Co.	5.57c
Perkins-Goodwin Co.	5.57c
Whitaker Paper Co.	5.57c
Marquette Paper Co.	5.57c
Barton, Duer & Koch Paper Co.	5.69c
Cauthorne Paper Co.	5.57c
R. P. Andrews Paper Co.	5.57c
Paper Corp. of U. S.	5.57c

Halftone Book

No. 34—300,000 lbs., 25x38—120 and 140; flat, cut, 35x45, 38x48 and 38x51 ins.

Stanford Paper Co.	6.4c
John F. Post, Inc.	6.4c
Barton, Duer & Koch Paper Co.	6.4c
R. P. Andrews Paper Co.	6.4c
Paper Corp. of U. S.	6.4c

Single-Coated Book

No. 35—500,000 lbs., 25x38—140; flat, cut 25½x38, 29x41, 38x48, 38x51 and 41x52 ins.; the grain to run lengthwise of the sheet.

Stanford Paper Co.	7.37c
John F. Post, Inc.	7.37c
R. P. Andrews Paper Co.	7.37c

Double-Coated Book

No. 36—100,000 lbs., 25x38—140 and 160; flat, cut 24x32, 24x38 and 38x48 ins.; the grain to run lengthwise of the sheet.

Stanford Paper Co.	9.7c
Thomas F. Barrett & Son	9.7c
John F. Post, Inc.	9.7c
James F. Walsh Paper Corp.	9.6c
Old Dominion Paper Co.	9.7c
Walker, Goulard Plehn Co.	9.7c
Marquette Paper Co.	9.7c
R. P. Andrews Paper Co.	9.7c
Butler Co.	9.7c

50 Per Cent Rag Double-Coated Book

No. 37—40,000 lbs., 25x38—140 and 160; flat, cut 24x32, 24x38, 32x42, 38x48, and 41x52 ins.; the grain to run lengthwise of the sheet.

Old Dominion Paper Co.	14.46c
Marquette Paper Co.	14.46c
R. P. Andrews Paper Co.	14.82c

50 Per Cent Rag Machine-Finish Lithograph

No. 40—20,000 lbs., 25x38—160; flat, cut 26x38 ins., the grain to run lengthwise of the sheet.

Whitaker Paper Co.	11.03c
Barton, Duer & Koch Paper Co.	12.47c
R. P. Andrews Paper Co.	11.87c
Aetna Paper Co.	9.134c
Whiting Paper Co.	11.8c

Mimeograph, White and Colored

No. 43—1,000,000 lbs., white, Nos. 40 and 48; flat, cut 24½x30½, 24½x32, 24½x38, 26x42½, and 28½x34½ ins.; the grain to run lengthwise of the sheet.

Stanford Paper Co.	6.15c
Whitaker Paper Co.	6.16c
Marquette Paper Co.	6.16c
Barton, Duer & Koch Paper Co.	6.16c
Cauthorne Paper Co.	6.16c
R. P. Andrews Paper Co.	6.16c
Aetna Paper Co.	6.21c
Paper Corp. of U. S.	6.2c
Butler Co.	6.16c

No. 44—40,000 lbs., blue, buff, green, pink and yellow, No. 40; flat, cut 24½x30½, 24½x32, 24½x38 and 26x42½ ins.; the grain to run lengthwise of the sheet. Min. order, one color, 10,000 lbs.

Stanford Paper Co.	7.12c
Whitaker Paper Co.	7.21c
Barton, Duer & Koch Paper Co.	7.17c
Aetna Paper Co.	7.21c
Paper Corp. of U. S.	7.17c
Butler Co.	7.16c

25 Per Cent Rag Mimeograph

No. 47—2,000,000 lbs., Nos. 40 and 48; flat, cut 24½x30½, 24½x32, 24½x38, 26x42½, and 28½x34½ ins.; the grain to run lengthwise of the sheet.

Whitaker Paper Co.	8.19c
Cauthorne Paper Co.	7.24c
R. P. Andrews Paper Co.	7.265c
Aetna Paper Co.	6.434c
Paper Corp. of U. S.	7.31c
Whiting Paper Co.	9.71c

Blue U S M O Safety Writing

No. 51—400,000 lbs., No. 32; rolls,

11 and 22 ins. wide, 24 ins. in diameter (3-inch iron cores).

Stanford Paper Co. (200,000 lbs. only)	10.72c
(200,000 lbs. additional)	11.49c
Geo. LaMonte & Son	10.4c
R. P. Andrews Paper Co.	10.23c

U S M O Writing, White and Blue

No. 52—6,000 lbs., No. 32; rolls, 8½ inches wide, 24 ins. in diameter (3-inch iron cores). Min. order, either color, 4,000 lbs.

R. P. Andrews Paper Co. (white)	9.55c
(blue)	10.15c

Safety Writing, Colored

No. 53—4,000 lbs., blue, gray, green, pink salmon, and yellow, No. 40; flat, cut 17x28, 21x32, and 22x34 ins. Min. order, one color, 2,000 lbs.

Stanford Paper Co.	12.c
Whitaker Paper Co.	12.45c
Mathers-Lamm Paper Co.	12.75c
R. P. Andrews Paper Co.	12.33c

Sulphite Writing, White and Colored

No. 55—1,500,000 lbs., white, No. 32; flat, cut any size, min. width 21 ins., max. width 34 ins.

Stanford Paper Co.	6.41c
Whitaker Paper Co.	6.2c
Old Dominion Paper Co.	6.384c
Barton, Duer & Koch Paper Co.	6.2c
R. P. Andrews Paper Co.	6.2c
Virginia Paper Co.	6.2c
Aetna Paper Co.	6.2c
Paper Corp. of U. S.	6.2c
Butler Co.	6.2c
Baldwin Paper Co., Inc.	6.2c

No. 56—2,500,000 lbs., white, Nos. 40 and 48; flat, cut any size, min. width 21 ins., max. width 34 ins.

Stanford Paper Co.	6.16c
Whitaker Paper Co.	6.2c
Old Dominion Paper Co.	6.1341
Barton, Duer & Koch Paper Co.	6.2c
R. P. Andrews Paper Co.	6.2c
Virginia Paper Co.	6.2c
Aetna Paper Co.	6.2c
Paper Corp. of U. S.	6.2c
Butler Co.	6.2c
Baldwin Paper Co., Inc.	6.2c

No. 57—40,000 lbs., white, No. 26; rolls, min. width 16 ins., max. width 38 ins. (3-inch iron cores).

Stanford Paper Co.	7.64c
Barton, Duer & Koch Paper Co.	7.34c
Virginia Paper Co.	7.42c
Aetna Paper Co.	7.42c
Paper Corp. of U. S.	6.69c
Butler Co.	6.69c

No. 58—400,000 lbs., white, No. 32; rolls, min. width 16 ins., max. width 38 ins. (3-inch iron cores).

Stanford Paper Co.	6.41c
Whitaker Paper Co.	5.96c
Marquette Paper Co.	5.8c
Barton, Duer & Koch Paper Co.	5.96c
R. P. Andrews Paper Co.	5.96c
Virginia Paper Co.	5.96c
Aetna Paper Co.	5.96c
Paper Corp. of U. S.	5.96c
Butler Co.	5.96c
Baldwin Paper Co., Inc.	6.26c

No. 59—70,000 lbs., white, Nos. 4 and 48; rolls, min. width 16 ins., max. width 38 ins. (3-inch iron cores).

Stanford Paper Co.	6.16c
Marquette Paper Co.	5.8c
Barton, Duer & Koch Paper Co.	5.96c
R. P. Andrews Paper Co.	5.96c
Virginia Paper Co.	5.96c
Aetna Paper Co.	5.96c
Paper Corp. of U. S.	5.96c
Butler Co.	5.96c
Baldwin Paper Co., Inc.	6.26c

No. 60—25,000 lbs., blue, buff, cherry, green, pink, salmon and yellow, No. 26; flat, cut any size, min. width 21 ins., max. width 34 ins. Min. order, one color, 5,000 lbs.

Stanford Paper Co.	8.64c
Barton, Duer & Koch Paper Co.	8.39c
Virginia Paper Co.	8.6c
Aetna Paper Co.	8.434c
Paper Corp. of U. S.	8.83c

No. 61—1,200,000 lbs., blue, buff, cherry, green, pink, salmon and yellow, Nos. 32 and 40; flat, cut any size, min. width 21 ins., max. width 34 ins. Min. order, one color, 10,000 lbs.

Stanford Paper Co.	7c
Marquette Paper Co.	7.15c
Barton, Duer & Koch Paper Co.	7.25c
Virginia Paper Co.	7.17c
Aetna Paper Co.	6.634c
Paper Corp. of U. S.	7.17c
Butler Co.	7.17c
Baldwin Paper Co., Inc.	7.17c

100 Per Cent Rag White Writing

No. 63—2,500 lbs., No. 56; flat, cut 21x32 ins. Min. order 2,500 lbs.

Old Dominion Paper Co.	21.169c
Barton, Duer & Koch Paper Co.	21.95c
R. P. Andrews Paper Co.	22.47c
Lee Paper Co.	26.92c

Lithograph-Finish Map

No. 64—10,000 lbs., Nos. 32 and 40; flat, cut 24x38, 30x40, 32x48, 36x52, and 38x48 ins. Min. order, one substance, 5,000 lbs.

No bid.

50 Per Cent Rag Lithograph-Finish Map

No. 65—30,000 lbs., Nos. 40, 48 and 56; flat, cut any size, min. width 22 ins., max. width 48 ins.; the grain to run lengthwise of the sheet.

Stanford Paper Co.	12.54c
Graham Paper Co.	12.59c
Barton, Duer & Koch Paper Co.	11.57c
R. P. Andrews Paper Co.	14.87c
Aetna Paper Co.	12.094c
Whiting Paper Co.	11.8c

75 Per Cent Rag Lithograph-Finish Map

No. 66—100,000 lbs., Nos. 32 and 40; flat, cut any size, min. width 24 ins., max. width 48 ins.; the grain to run lengthwise of the sheet.

Barton, Duer & Koch Paper Co.	13.47c
R. P. Andrews Paper Co.	15.13c
Aetna Paper Co.	14.294c
Whiting Paper Co.	14.06c
Butler Co.	14.59c

No. 67—80,000 lbs., Nos. 48 and 56; flat, cut any size, min. width 30 ins., max. width 48 ins.; the grain to run lengthwise of the sheet. Min. order, one substance, 5,000 lbs.

Barton, Duer & Koch Paper Co.	13.47c
R. P. Andrews Paper Co.	15.13c
Aetna Paper Co.	14.294c
Whiting Paper Co.	14.06c
Butler Co.	14.59c

100 Per Cent Rag White Chart, Lithograph-Finish

No. 69—100,000 lbs., No. 96; flat, cut any size, min. width 22 ins., max. width 46 ins.; packed in cases of 1,000 sheets each; the grain to run lengthwise of the sheet unless otherwise specified.

Stanford Paper Co.	21.39c
Reese & Reese, Inc.	20.07c
Graham Paper Co.	21.26c
Barton, Duer & Koch Paper Co.	18.82c
R. P. Andrews Paper Co.	19.97c
Lee Paper Co.	22.95c
Whiting Paper Co.	22.11c

Sulphite Manifold, White and Colored

No. 70—140,000 lbs., white, No. 18; flat, cut 21x32, 22x34, and 28x34 ins.; the grain to run the 21-inch way on the 21x32-inch size.

Import Paper Co., less 2% 30 days	7.75c
L. Hyman & Sons	9.5c
Whitaker Paper Co.	8.125c
Old Dominion Paper Co.	7.489c
Graham Paper Co.	7.7c
Paper Corp. of U. S.	8.5c

No. 71—20,000 lbs., blue, buff, cherry, green, pink, salmon and yellow, No. 18; flat, cut 21x32, 22x34, and 28x34 ins.; the grain to run the 21-inch way on the 21x32-inch size. Min. order, one color, 5,000 lbs.

Import Paper Co., less 2% 30 days	8.75c
L. Hyman & Sons	10.c
Whitaker Paper Co.	9.25c
Old Dominion Paper Co.	8.488c
Graham Paper Co.	9.6c
Paper Corp. of U. S.	9.5c

50 Per Cent Rag Manifold, White and Colored

No. 73—50,000 lbs., white, No. 14; flat, cut 21x32, 22x34, 28x34 and 38x48 ins.; the grain to run the 21-inch way on the 21x32-inch size. Min. order 5,000 lbs.

Marquette Paper Co.	18.45c
Barton, Duer & Koch Paper Co.	19.6c
R. P. Andrews Paper Co.	21.c

No. 74—400,000 lbs., white, No. 18; flat, cut 21x32, 22x34, 24x38 and 28x34 ins.; the grain to run the 21-inch way on the 21x32-inch size.

Old Dominion Paper Co.	15.7498c
Marquette Paper Co.	15.5c
Barton, Duer & Koch Paper Co.	13.85c
R. P. Andrews Paper Co.	14.57c
Lee Paper Co.	13.07c
Butler Co.	13.65c

No. 75—20,000 lbs., blue, buff, cherry, green, pink, salmon and yellow, No. 14; flat, cut 21x32, 22x34, and 28x34 ins.; the grain to run the 21-inch way on the 21x32-inch size. Min. order, one color, 3,000 lbs.

Barton, Duer & Koch Paper Co.	20.85c
R. P. Andrews Paper Co.	24.c

No. 76—160,000 lbs., blue, buff, cherry, green, pink, salmon and yellow, No. 18; flat, cut 21x32, 22x34, 24x38 and 28x34 ins.; the grain to run the 21-inch way on the 21x32-inch size. Min. order, one color, 5,000 lbs.

Stanford Paper Co.	14.72c
Old Dominion Paper Co.	16.7498c
Marquette Paper Co.	20.c
Barton, Duer & Koch Paper Co.	14.98c
Old Dominion Paper Co.	14.97c
Lee Paper Co.	13.77c

100 Per Cent Rag White Manifold

No. 78—5,000 lbs., white, No. 14; flat, cut 17x28, 19x24, 21x32, and 22x34 ins.; the grain to run the 21-inch way on the 21x32-inch size. Min. order, 5,000 lbs.

Whitaker Paper Co.	40.c
Marquette Paper Co.	16.5c
Barton, Duer & Koch Paper Co.	31.85c
R. P. Andrews Paper Co.	31.c

No. 79—10,000 lbs., white, No. 18; flat, cut 17x28, 19x24, 21x32 and 22x34 ins.; the grain to run the 21-inch way on the 21x32 ins. size. Min. order 5,000 lbs.

Whitaker Paper Co.	30.c
Barton, Duer & Koch Paper Co.	25.85c
R. P. Andrews Paper Co.	25.9c
Lee Paper Co.	25.72c

50 Per Cent Rag White Glazed Manifold

No. 83—100,000 lbs., No. 16; flat cut 19x24 and 21x32 ins.; the grain to run the 21-inch way on the 21x32-inch size. Min. order 20,000 lbs.

Old Dominion Paper Co.	17.499c
Barton, Duer & Koch Paper Co.	16.88c
R. P. Andrews Paper Co.	17.075c
Lee Paper Co.	19.97c

Sulphite White Bond

No. 102—800,000 lbs., white, Nos. 32 and 40; flat, cut any size, min. width 21 ins.; max. width 34 ins.

Stanford Paper Co.	6.44c
John E. Post, Inc.	6.45c

Marquette Paper Co.	6.15c
Barton, Duer & Koch Paper Co.	6.45c
R. P. Andrews Paper Co.	6.45c
Virginia Paper Co.	6.2c
Aetna Paper Co.	6.45c
Paper Corp. of U. S.	6.45c

25 Per Cent Rag Bond, White and Colored

No. 109—250,000 lbs., white, No. 26; flat, cut any size, min. width 21 ins., max. width 34 ins.

Stanford Paper Co.	13.37c
Reese & Reese, Inc.	14.7c
Walker Goulard Plehn Co.	14.36c
Graham Paper Co.	12.98c
Barton, Duer & Koch Paper Co.	11.35c
R. P. Andrews Paper Co.	12.63c
Virginia Paper Co.	14.9c
Aetna Paper Co.	10.234c
Whiting Paper Co.	11.35c

No. 110—500,000 lbs., white, No. 32; flat, cut any size, min. width 21 ins., max. width 34 ins.

Reese & Reese, Inc.	13.c
Barton, Duer & Koch Paper Co.	9.35c
R. P. Andrews Paper Co.	9.324c
Aetna Paper Co.	8.434c
Whiting Paper Co.	19.33c
Butler Co.	8.99c

No. 111—900,000 lbs., white, No. 40; flat, cut any size, min. width 21 ins., max. width 34 ins.

Reese & Reese, Inc.	12.61c
Barton, Duer & Koch Paper Co.	9.15c
R. P. Andrews Paper Co.	8.357c
Aetna Paper Co.	7.874c
Whiting Paper Co.	9.71c
Butler Co.	8.99c

No. 112—900,000 lbs., white, No. 40; flat, cut any size, min. width 21 ins., max. width 34 ins.

Barton, Duer & Koch Paper Co.	9.15c
R. P. Andrews Paper Co.	8.238c
Aetna Paper Co.	8.174c
Whiting Paper Co.	9.71c

No. 113—400,000 lbs., white, No. 48; flat, cut any size, min. width 21 ins., max. width 34 ins.

Reese & Reese, Inc.	12.61c
Barton, Duer & Koch Paper Co.	9.45c
R. P. Andrews Paper Co.	9.248c
Aetna Paper Co.	8.334c
Whiting Paper Co.	9.71c

No. 114—300,000 lbs., blue, buff, cherry, green, pink, salmon and yellow, No. 26; flat, cut any size, min. width 21 ins., max. width 34 ins. Min. order, one color, 5,000 lbs.

Barton, Duer & Koch Paper Co.	12.2c
R. P. Andrews Paper Co.	13.13c
Virginia Paper Co.	15.5c
Aetna Paper Co.	10.734c
Whiting Paper Co.	11.35c

No. 115—300,000 lbs., blue, buff, cherry, green, pink, salmon and yellow, No. 32; flat, cut any size, min. width 21 ins., max. width 34 ins.

Barton, Duer & Koch Paper Co.	10.3c
R. P. Andrews Paper Co.	10.398c
Virginia Paper Co.	11.65c
Aetna Paper Co.	8.874c
Whiting Paper Co.	9.71c

No. 116—200,000 lbs., blue, buff, cherry, green, pink, salmon and yellow, No. 40; flat, cut any size, min. width 21 ins., max. width 34 ins.

Barton, Duer & Koch Paper Co.	10.3c
R. P. Andrews Paper Co.	10.398c
Aetna Paper Co.	8.334c
Whiting Paper Co.	9.71c

No. 117—100,000 lbs., blue, buff, cherry, green, pink, salmon and yellow, No. 48; flat, cut any size, min. width 21 ins., max. width 34 ins.

Barton, Duer & Koch Paper Co.	11.7c
R. P. Andrews Paper Co.	10.398c
Virginia Paper Co.	11.65c
Aetna Paper Co.	8.934c
Whiting Paper Co.	10.33c

50 Per Cent Rag Bond, White and Colored

No. 120—50,000 lbs., white, No. 26; flat, cut any size, min. width 21 ins., max. width 34 ins.

Reese & Reese, Inc.	16.03c
Graham Paper Co.	13.01c
Barton, Duer & Koch Paper Co.	13.45c
R. P. Andrews Paper Co.	16.30c
Virgnia Paper Co.	15.c
Aetna Paper Co.	12.434c
Whiting Paper Co.	12.98c
Butler Co.	14.28c

No. 121—600,000 lbs., Nos. 32 and 40; flat, cut any size, min. width 21 ins., max. width 34 ins.

Reese & Reese, Inc.	15.5c
Graham Paper Co.	11.57c
Barton, Duer & Koch Paper Co.	11.05c
R. P. Andrews Paper Co.	14.02c
Aetna Paper Co.	9.834c
Whiting Paper Co.	10.75c

No. 122—30,000 lbs., white, No. 48; flat, cut any size, min. width 21 ins., max. width 34 ins.

Reese & Reese, Inc.	14.02c
Graham Paper Co.	12.05c
Barton, Duer & Koch Paper Co.	11.25c
R. P. Andrews Paper Co.	14.02c
Virginia Paper Co.	12.5c
Aetna Paper Co.	10.034c
Whiting Paper Co.	10.75c

No. 123—15,000 lbs., blue, buff, cherry, green, pink, salmon and yellow, Nos. 32 and 40; flat, cut any size, min. width 21 ins., max. width 34 ins. Min. order, one color, one substance, 2,500 lbs.

Graham Paper Co.	13.67c
Barton, Duer & Koch Paper Co.	12.25c
Virginia Paper Co.	13.c
Aetna Paper Co.	10.734c
Whiting Paper Co.	13.32c

75 Per Cent Rag White Bond

No. 125—2,500 lbs., No. 26; flat, cut any size, min. width 21 ins., max. width 32 ins. Min. order, 2,500 lbs.

Old Dominion Paper Co.	20.909c
Graham Paper Co.	21.97c
Virginia Paper Co.	22.c
Whiting Paper Co.	23.17c
Butler Co.	21.16c
Resolute Paper Products Corp.	21.93c
less than carload lots	22.74c

No. 126—2,500 lbs., Nos. 32, 40, and 48; flat, cut any size, min. width 21 ins., max. width 32 ins. Min. order, one substance, 2,500 lbs.

Old Dominion Paper Co.	17.409c
Graham Paper Co.	18.26c
Virginia Paper Co.	19.16c
Whiting Paper Co.	23.17c
Butler Co.	10.05c
Resolute Paper Products Corp.	21.93c
less than carload lots	22.74c

100 Per Cent Rag White Bond

No. 128—6,000 lbs., Nos. 32 and 40; flat, cut any size, min. width 16 ins., max. width 32 ins. Min. order, one substance, 2,000 lbs.

Stanford Paper Co.	23.49c
Old Dominion Paper Co.	20.959c
Barton, Duer & Koch Paper Co.	21.95c
R. P. Andrews Paper Co.	2.47c
Whiting Paper Co.	29.48c
Resolute Paper Products Corp.	36.72c
less than carload lots	37.82c

No. 129—5,000 lbs., No. 48; flat, cut any size, min. width 16 ins., max. width 32 ins. Min. order, 2,000 lbs.

Stanford Paper Co.	23.49c
Old Dominion Paper Co.	20.959c
Barton, Duer & Koch Paper Co.	21.95c
R. P. Andrews Paper Co.	22.47c
Whiting Paper Co.	29.48c
Resolute Paper Products Corp.	36.72c
less than carload lots	37.82c

100 Per Cent Rag Declaration Bond

No. 140—3,000 lbs., Nos. 32 and 40; flat, cut 17x22 and 22x25½ ins. Min. order, one substance, 3,000 lbs.

Old Dominion Paper Co.	26.889c
Graham Paper Co.	27.59c
Whiting Paper Co.	29.48c

100 Per Cent Rag Parchment Deed

No. 141—2,000 lbs., No. 64; flat, cut 33x34 ins. Min. order, 2,000 lbs.

Stanford Paper Co.	23.59c
Old Dominion Paper Co.	20.959c
Barton, Duer & Koch Paper Co.	21.95c
R. P. Andrews Paper Co.	23.47c

Sulphite White Ledger

No. 151—100,000 lbs., white, Nos. 56 and 64; flat, cut any size, min. width 17 ins., max. width 32 ins. Min. order, one substance, 10,000 lbs.

Stanford Paper Co.	6.9c
Import Paper Co. less 2% 30 days	7.5c
Marquette Paper Co.	7.15c
Barton, Duer & Koch Paper Co.	7.c
R. P. Andrews Paper Co.	7.17c
Aetna Paper Co.	7.17c
Paper Corp. of U. S.	7.42c
Whiting Paper Co.	7.63c

No. 152—80,000 lbs., white, No. 80; flat, cut any size, min. width 17 ins., max. width 32 ins.

Stanford Paper Co.	6.9c
Import Paper Co. less 2% 30 days	7.5c
Marquette Paper Co.	7.15c
Barton, Duer & Koch Paper Co.	7.c
R. P. Andrews Paper Co.	7.17c
Aetna Paper Co.	7.17c
Paper Corp. of U. S.	7.42c
Whiting Paper Co.	7.63c

25 Per Cent Rag Ledger, White and Colored

No. 154—60,000 lbs., white, Nos. 48 and 56; flat, cut 20x28, 21x32, 24x38, 28x29 and 28x34 ins. Min. order, one substance, 5,000 lbs.

Stanford Paper Co.	10.315c
Walker Goulard Plehn Co.	10.15c
Graham Paper Co.	13.75c
Barton, Duer & Koch Paper Co.	10.35c
R. P. Andrews Paper Co.	11.48c
Virginia Paper Co.	11.c
Aetna Paper Co.	9.274c
Whiting Paper Co.	10.33c

No. 155—5,000 lbs., white, No. 64; flat, cut 21x32 and 23x36 ins. Min. order, 5,000 lbs.

Stanford Paper Co.	11.35c
Walker, Goulard Plehn Co.	10.15c
Barton Duer & Koch Paper Co.	10.95c
R. P. Andrews Paper Co.	11.48c
Virginia Paper Co.	11.19c
Aetna Paper Co.	9.774c
Whiting Paper Co.	10.33c

No. 156—15,000 lbs., white, No. 72; flat, cut 20x28, 21x32, 24x38, and 28x34 ins. Min. order, 5,000 lbs.

Stanford Paper Co.	11.35c
Walker Gonulard Plehn Co.	10.15c
Barton, Duer & Koch Paper Co.	10.95c
R. P. Andrews Paper Co.	11.48c
Virginia Paper Co.	11.19c
Aetna Paper Co.	9.774c
Whiting Paper Co.	10.33c

No. 157—20,000 lbs., blue, buff, green, pink, salmon and yellow, Nos. 56, 64, and 72; flat, cut 21x32, 23x36, 24x38, 26x36, and 28x34 ins. Min. order, one substance, one color, 3,000 lbs.

Stanford Paper Co.	11.85c
Walker Goulard Plehn Co.	10.33c
Graham Paper Co.	14.5c
Barton, Duer & Koch Paper Co.	11.95c
Virginia Paper Co.	11.88c
Aetna Paper Co.	10.274c
Whiting Paper Co.	11.38c

50 Per Cent Rag Ledger, White and Colored

No. 160—100,000 lbs., white, Nos. 48 and 56; flat, cut 18½x36, 18½x40¼, 20x28, 21x32, 24x38, 28x29, and 28x34 ins. Min. order, one substance, 10,000 lbs.

Stanford Paper Co.	11.625c
Graham Paper Co.	14.5c
Barton, Duer & Koch Paper Co.	11.35c
R. P. Andrews Paper Co.	13.27c
Aetna Paper Co.	10.374c
Whiting Paper Co.	10.79c

No. 161—30,000 lbs., white, No. 64; flat, cut 21x32 and 23x36 ins. Min. order, 10,000 lbs.

Stanford Paper Co.	11.625c
Graham Paper Co.	14.5c

Barton, Duer & Koch Paper Co. ... 11.35c
R. P. Andrews Paper Co. 13.27c
Aetna Paper Co. 10.374c
Whiting Paper Co. 10.79c

No. 162—400,000 lbs., white, Nos. 72 and 80; flat, cut 20x28, 21x32, 24x38, and 28x34 and 36½x48½ ins.; on size 36½x48½ the grain to run crosswise on the sheet. Min. order, 10,000 lbs.

Stanford Paper Co. 11.625c
Barton, Duer & Koch Paper Co. ... 10.79c
R. P. Andrews Paper Co. 13.27c
Aetna Paper Co. 11.094c
Whiting Paper Co. 10.79c

No. 163—20,000 lbs., white, No. 88; flat, cut 21x32½ ins. Min. order, 10,000 lbs.

Stanford Paper Co. 11.625c
Barton, Duer & Koch Paper Co. ... 11.35c
R. P. Andrews Paper Co. 13.27c
Aetna Paper Co. 10.374c
Whiting Paper Co. 10.79c

No. 164—40,000 lbs., blue, buff, cherry, green, pink, salmon and yellow, Nos. 56, 64, and 72; flat, cut 18½x36, 18½x40¼, 19x24, 21x32, 23x36, and 28x34 ins. Min. order, one substance, one color, 5,000 lbs.

Stanford Paper Co. 12.125c
Graham Paper Co. 14.9c
Barton Duer & Koch Paper Co. .. 11.85c
Aetna Paper Co. 10.674c
Whiting Paper Co. 11.32c

No. 165—40,000 lbs., blue, buff, cherry, fawn, green, pink, salmon and yellow, No. 88; flat, cut 21x32½ ins. Min. order, one color, 5,000 lbs.

Stanford Paper Co. 12.125c
Graham Paper Co. 14.9c
Barton, Duer & Koch Paper Co. ... 11.85c
Aetna Paper Co. 10.674c
Whiting Paper Co. 11.32c

75 Per Cent Rag Ledger, White and Colored

No. 168—10,000 lbs., white, Nos. 48 and 56; flat, cut 21x32, 24x38, 28x29, and 28x34 ins. Min. order, one substance, 5,000 lbs.

Stanford Paper Co. 16.28c
Old Dominion Paper Co. 14.569c
Barton, Duer & Koch Paper Co. .. 14.47c
Mathers-Lamm Paper Co. 16.98c
R. P. Andrews Paper Co. 17.81c
Aetna Paper Co. 15.094c
Whiting Paper Co. 14.73c

No. 169—10,000 lbs., white, No. 64; flat, cut 21x32, 23x36, 24x38, and 28x34 ins. Min. order, 5,000 lbs.

Stanford Paper Co. 16.28c
Old Dominion Paper Co. 14.569c
Graham Paper Co. 18.5c
Barton, Duer & Koch Paper Co. .. 14.47c
Mathers-Lamm Paper Co. 16.98c
R. P. Andrews Paper Co. 17.81c
Aetna Paper Co. 15.094c
Whiting Paper Co. 14.73c

No. 170—20,000 lbs., white, Nos. 72 and 80; flat, cut 20x28, 21x32, 24x38, and 28x34 ins. Min. order, one substance, 5,000 lbs.

Stanford Paper Co. 16.28c
Old Dominion Paper Co. 14.569c
Graham Paper Co. 19.c
Barton, Duer & Koch Paper Co. ... 14.47c
Mathers-Lamm Paper Co. 16.98c
R. P. Andrews Paper Co. 17.81c
Aetna Paper Co. 15.094c
Whiting Paper Co. 14.73c

No. 171—5,000 lbs., white, No. 88; flat, cut 21x32½ ins. Min. order, 5,000 lbs.

Stanford Paper Co. 16.28c
Old Dominion Paper Co. 14.569c
Graham Paper Co. 19.c
Barton, Duer & Koch Paper Co. ... 14.47c
Mathers-Lamm Paper Co. 16.98c
R. P. Andrews Paper Co. 17.81c
Aetna Paper Co. 15.094c
Whiting Paper Co. 14.73c

No. 172—10,000 lbs., blue, buff, cherry, pink, salmon and yellow, Nos. 56, 64, and 72; flat, cut 21x32, 23x36, 24x38, and 28x34 ins. Min. order, one substance, one color, 3,000 lbs.

Stanford Paper Co. 16.78c
Graham Paper Co. 19.c
Barton, Duer & Koch Paper Co. ... 15.23c
Mathers-Lamm Paper Co. 17.48c
Aetna Paper Co. 15.794c
Whiting Paper Co. 16.32c

No. 173—6,000 lbs., blue, buff, cherry, fawn, green, pink, salmon and yellow, No. 88; flat, cut 21x32½ ins. Min. order, one color, 4,000 lbs.

Stanford Paper Co. 17.28c
Graham Paper Co. 19.c
Barton, Duer & Koch Paper Co. ... 15.23c
Mathers-Lamm Paper Co. 17.48c
Aetna Paper Co. 15.794c
Whiting Paper Co. 16.32c

100 Per Cent Rag White Ledger

No. 176—5,000 lbs., No. 48; flat, cut 21x32, 22¾x31½, 23x36, 24x38, and 28x34 ins. Min. order, 5,000 lbs.

Stanford Paper Co. 22.14c
Carew Mfg. Co. 23.2c
Old Dominion Paper Co. 20.728c
Walker Goulard Plehn Co. 22.74c
Barton, Duer & Koch Paper Co... 19.78c
R. P. Andrews Paper Co. 20.67c
Whiting Paper Co. 25.8c
Resolute Paper Products Corp. ... 29.835c
less than carload lots 30.8c

No. 177—10,000 lbs., No. 56; flat, cut 20x28, 21x32, 23x36, 24x38, and 28x34 ins. Min. order 5,000 lbs.

Stanford Paper Co. 22.14c
Carew Mfg. Co. 23.2c
Old Dominion Paper Co. 20.728c
Walker Goulard Plehn Co. 22.74c
Barton, Duer & Koch Paper Co. ... 19.78c
R. P. Andrews Paper Co. 20.67c
Whiting Paper Co. 25.8c
Resolute Paper Products Corp.... 29.835c
less than carload lots 30.8c

No. 178—15,000 lbs., No. 64; flat, cut 18½x42, 21x32, 23x36, and 28x34 ins. Min. order 5,000 lbs.

Stanford Paper Co. 22.14c
Carew Mfg. Co. 23.2c
Old Dominion Paper Co. 20.728c
Walker Goulard Plehn Co. 22.74c
Barton, Duer & Koch Paper Co.... 19.78c
R. P. Andrews Paper Co. 20.67c
Whiting Paper Co. 25.8c
Resolute Paper Products Corp.... 29.835c
less than carload lots 30.8c

No. 179—5,000 lbs., No. 72; flat, cut 20x28, 21x32, 24x38, and 28x34 ins. Min. order, 5,000 lbs.

Stanford Paper Co. 22.14c
Carew Mfg. Co. 23.2c
Old Dominion Paper Co. 20.728c
Walker Goulard Plehn Co. 22.74c
Barton, Duer & Koch Paper Co. ... 19.78c
R. P. Andrews Paper Co. 20.67c
Whiting Paper Co. 25.8c
Resolute Paper Products Corp. ... 29.835c
less than carload lots 30.8c

No. 180—5,000 lbs., No. 80; flat, cut 21x32½ and 21x42 ins. Min. order, 4,000 lbs.

Stanford Paper Co. 22.14c
Carew Mfg. Co. 23.2c
Old Dominion Paper Co. 20.728c
Walker Goulard Plehn Co. 22.99c
Barton, Duer & Koch Paper Co. ... 19.78c
R. P. Andrews Paper Co. 20.67c
Whiting Paper Co. 25.8c
Resolute Paper Products Corp. ... 30.09c
less than carload lots 31.06c

No. 181—10,000 lbs., No. 88; flat, cut 20½x24¾, 21x32½, and 22¾x31½ ins. Min. order, 5,000 lbs.

Stanford Paper Co. 22.14c
Carew Mfg. Co. 23.2c
Old Dominion Paper Co. 20.728c
Walker Goulard Plehn Co. 22.99c
Barton, Duer & Koch Paper Co. ... 19.78c
R. P. Andrews Paper Co. 20.67c
Whiting Paper Co. 25.8c
Resolute Paper Products Corp. ... 29.835c
less than carload lots 30.8c

Sulphite White Index

No. 184—100,000 lbs., white, 22½x28½—182 and 230; flat, cut 21x32½, 22½x28½, and 24½x32½ ins., with projecting colored-paper marker between each 100 sheets. Min. order, one weight, 10,000 lbs.

Stanford Paper Co. 6.82c
Graham Paper Co. 6.83c
Marquette Paper Co. 6.84c
R. P. Andrews Paper Co. 6.75c
Virginia Paper Co. 6.6c
Paper Corp. of U. S. 6.84c

50 Per Cent Rag Index, White and Colored

No. 190—200,000 lbs., white, 22½x28½—182 and 230; flat, cut 21x32½, 22½x28½ and 24½x32½ ins., with projecting colored-paper marker between each 100 sheets. Min. order, one weight, 10,000 lbs.

Stanford Paper Co. 11.99c
Walker Goulard Plehn Co. 11.65c
Graham Paper Co. 12.11c
Marquette Paper Co. 11.75c
Barton, Duer & Koch Paper Co. ... 13.35c
R. P. Andrews Paper Co. 12.91c
Aetna Paper Co. 9.634c
Whiting Paper Co. 10.79c

No. 191—20,000 lbs., white, 22½x28½—280 and 362; flat, cut 21x32½ and 22½x28½ ins., with projecting colored-paper marker between each 100 sheets. Min. order, one weight, 5,000 lbs.

Stanford Paper Co. 15.39c
Walker Goulard Plehn Co. 12.64c
Marquette Paper Co. 12.95c
Barton, Duer & Koch Paper Co... 17.35c
Whiting Paper Co. 13.16c

No. 192—180,000 lbs., blue, buff, fawn, green, pink, salmon and yellow, 22½x28½—182 and 230; flat, cut 21x32½ and 22½x28½ ins., with projecting colored-paper marker between each 100 sheets. Min. order, one color, one weight, 5,000 lbs.

Stanford Paper Co. 12.54c
Walker Goulard Plehn Co. 11.89c
Graham Paper Co. 12.38c
Marquette Paper Co. 11.95c
Barton Duer & Koch Paper Co. ... 11.77c
Aetna Paper Co. 9.634c
Whiting Paper Co. 11.85c

No. 193—15,000 lbs., blue, buff, fawn, green, pink, salmon and yellow, 22½x28½—280 and 362; flat, cut 21x32½ and 22½x28½ ins., with projecting colored-paper marker between each 100 sheets. Min. order, one color, one weight, 5,000 lbs.

Stanford Paper Co. 15.89c
Walker Goulard Plehn Co. 12.88c
Marquette Paper Co. 13.95c
Barton Duer & Koch Paper Co. ... 15.74c
Whiting Paper Co. 14.22c

100 Per Cent Rag White Index

No. 196—80,000 lbs., 22½x28½—approximately 206; flat, cut 20½x30½ and 21x32½ ins.

Stanford Paper Co. 21.39c
Carew Mfg. Co. 19.95c
Reese & Reese, Inc. 20.25c
Walker Goulard Plehn Co. 21.28c
Marquette Paper Co. 19.95c
Barton Duer & Koch Paper Co. ... 19.75c
Mathers-Lamm Paper Co. 22.27c
R. P. Andrews Paper Co. 20.17c
Lee Paper Co. 22.95c

White Tissue

No. 197—2,000 lbs., flat, 21x32—18. Min. order, 1,000 lbs.

Mathers-Lamm Paper Co. 12.75c
R. P. Andrews Paper Co. 14.c

Facing Stereo Tissue

No. 198—500 lbs., 19x24—9; rolls 24 ins. wide (3-inch iron cores). Min. order, 500 lbs.

No bid.

Coated Cover, White and Colored

No. 201—5,000 lbs., white, 20x26—130

and 160; flat, 26½x41 ins., the grain to run lengthwise of the sheet. Min. order, 5,000 lbs.

Stanford Paper Co.	8.48c
John F. Post, Inc.	7.37c
R. P. Andrews Paper Co.	7.5c

No. 202—40,000 lbs., India tint and light green, 20x26—100; flat, 26½x41 ins.

Stanford Paper Co.	9.26c
John F. Post, Inc.	8.37c
R. P. Andrews Paper Co.	8.17c

25 Per Cent Rag Machine-Finish Cover, White and Colored

No. 203—60,000 lbs., white, dawn, quaker drab, robin's egg, terra cotta, light blue, dark blue, buff, gold, cream, light gray, dark gray, light brown, dark brown, light green, dark green, and coral red; flat, 20x25—96, in wrapped bundles with projecting colored-paper marker between each 500 sheets. Min. order, one color, 2,500 lbs.

Stanford Paper Co.	10.25c
Whitaker Paper Co.	11.53c
R. P. Andrews Paper Co.	10.63c
Old Dominion Paper Co.	11.843c

No. 204—80,000 lbs., white, blue, brown, granite, green, pink, tea and yellow, 20x26—100; flat, cut 20x25 and 33x46 ins., in wrapped bundles, with projecting colored-paper marker between each 500 sheets. Min. order, one color, 5,000 lbs.

Stanford Paper Co.	10.25c
Whitaker Paper Co.	11.53c
R. P. Andrews Paper Co.	10.63c
Old Dominion Paper Co.	11.843c

50 Per Cent Rag Laid Cover, Colored

No. 205—50,000 lbs., blue, cream, white, gray and green, 20x26—130; flat, cut 20x25, 22x33 and 26½x41 ins., in wrapped bundles, with projecting colored-paper marker between each 500 sheets. Min. order, one color, 2,000 lbs.

Stanford Paper Co.	11.97c
R. P. Andrews Paper Co.	12.07c
Lee Paper Co.	11.55c

Wood Manila

No. 209—100,000 lbs., 24x36—80 to 120; flat, cut 21x32, 22½x34½, and 25x38 ins., in wrapped bundles with projecting colored-paper marker between each 500 sheets.

Barton, Duer & Koch Paper Co.	4.4c
Paper Corp. of U. S.	4.85c

No. 210—200,000 lbs., 24x36—80 to 120; rolls, 18 and 21 ins. wide (3-inch iron cores).

Barton, Duer & Koch Paper Co.	4.c
Paper Corp. of U. S.	4.6c

Chemical Wood Manila

No. 211—20,000 lbs., 24x36—100 to 160; flat, cut any size in wrapped bundles. Min. order, one weight, 5,000 lbs.

Old Dominion Paper Co.	5.89c
Barton, Duer & Koch Paper Co.	5.75c

Rope or Super-Purified Wood Manila

No. 213—10,000 lbs., 24x36—120, 140, and 160; rolls, 18 and 48 ins. wide (3-inch iron cores). Min. order, 5,000 lbs.

Barton Duer & Koch Paper Co.	8.25c

No. 214—10,000 lbs., 24x36—280; rolls, 48 ins. wide (3-inch iron cores). Min. order, 5,000 lbs.

Barton Duer & Koch Paper Co.	8.25c

Drumhead Manila

No. 215—25,000 lbs., 24x36—280; flat, cut 26x42 ins. Min. order, 5,000 lbs.

Whitaker Paper Co.	8.57c 8.33c
Barton Duer & Koch Paper Co.	8.c

No. 2 Kraft

No. 217—160,000 lbs., 24x36—80 to 160; flat, cut any size in wrapped bundles.

Perkins-Goodwin Co.	4.607c
Paper Sales Agency Co.	4.61c
Import Paper Co...Less 2% 30 days	5.c
Old Dominion Paper Co.	4.607c
Walker Goulard Plehn Co.	4.65c
Barton Duer & Koch Paper Co.	4.65c
Mathers-Lamm Paper Co.	4.51c
R. P. Andrews Paper Co.	4.42c
Paper Corp. of U. S.	4.65c

No. 218—120,000 lbs., 24x36—80 to 160; cut any size, folded (25 sheets per fold), in wrapped bundles.

Perkins-Goodwin Co.	4.607c
Paper Sales Agency Co.	4.61c
Import Paper Co...Less 2% 30 days	5.c
Old Dominion Paper Co.	4.607c
Walker Goulard Plehn Co.	4.65c
Barton Duer & Koch Paper Co.	4.9c
Mathers-Lamm Paper Co.	4.51c
R. P. Andrews Paper Co.	4.42c
Paper Corp. of U. S.	4.65c

No. 219—250,000 lbs., 24x36—80 to 160; rolls, 9, 10½, 11½, 24, 36, 39, and 48 ins. wide, wound on wooden plugs, 1½-inch hole, or in 3-inch iron cores as may be specified.

Stanford Paper Co.	4.5c
Perkins-Goodwin Co.	4.357c
Paper Sales Agency Co.	4.36c
Import Paper Co...Less 2% 30 days	5.c
Old Dominion Paper Co.	4.357c
Walker Goulard Plehn Co.	4.41c
Barton Duer & Koch Paper Co.	4.41c
Mathers-Lamm Paper Co.	4.27c
R. P. Andrews Paper Co.	4.18c
Paper Corp. of U. S.	4.41c

No. 1 Kraft

No. 220—6,000 lbs., 24x36—120 and 160; flat, cut any size in wrapped bundles.

No bid.

White Paraffin

No. 251—1,000 lbs., flat, 24x38—32. Min. order, 1,000 lbs.

Enterprise Paper Co.	9.99c
R. P. Andrews Paper Co.	9.75c

White Gummed

No. 252—300,000 sheets, flat, 17x22—40, exclusive of weight of gum used Min. order, 50,000 sheets.

Stanford Paper Co.	$5.98 per M sheets
Andrews Paper House of York	5.30 per M sheets
Old Dominion Paper Co.	5.40 per M sheets
Walker Goulard Plehn Co.	5.85 per M sheets
Graham Paper Co.	5.35 per M sheets
Barton Duer & Koch Paper Co.	6.00 per M sheets
R. P. Andrews Paper Co.	5.40 per M sheets
Virginia Paper Co.	5.40 per M sheets

Blotting, White and Colored

No. 254—10,000 lbs., white, flat, 19x24—160, in wrapped bundles. Min. order, 4,000 lbs.

Thomas F. Barrett & Son	6.71c
L. Hyman & Sons	5.45c
Whitaker Paper Co.	5.85c
Andrews Paper House of York	6.75c
Enterprise Paper Co.	6.74c
Graham Paper Co.	5.45c
Marquette Paper Co.	6.75c
Barton Duer & Koch Paper Co.	5.84c
Cauthorne Paper Co.	5.83c
R. P. Andrews Paper Co.	6.27c

No. 255—2,000 lbs., buff and salmon, flat, 19x24—160, in wrapped bundles. Min. order, 2,000 lbs.

Thomas F. Barrett & Son	6.95c
L. Hyman & Sons	5.96c
Whitaker Paper Co.	5.85c
Andrews Paper House of York	6.75c
Enterprise Paper Co.	6.74c
Graham Paper	5.96c
Marquette Paper Co.	6.75c
Barton Duer & Koch Paper Co.	5.84c
Cauthorne Paper Co.	5.83c
R. P. Andrews Paper Co.	6.27c

25 Per Cent Rag Blotting, White and Colored

No. 256—10,000 lbs., white, flat, 19x24—160, in wrapped bundles. Min. order, 10,000 lbs.

Thomas F. Barrett & Son	8.35c
L. Hyman & Sons	7.86c
Whitaker Paper Co.	6.89c
Andrews Paper House of York	8.4c
Enterprise Paper Co.	8.39c
Graham Paper Co.	7.86c
Marquette Paper Co.	8.4c
Barton Duer & Koch Paper Co.	7.16c
Cauthorne Paper Co.	7.14c
R. P. Andrews Paper Co.	7.47c

No. 257—8,000 lbs., buff and salmon, flat, 19x24—160, in wrapped bundles. Min. order, one color, 2,000 lbs.

Thomas F. Barrett & Son	8.4c
L. Hyman & Sons	7.86c
Whitaker Paper Co.	7.c
Andrews Paper House of York	8.4c
Enterprise Paper Co.	8.44c
Graham Paper Co.	7.86c
Marquette Paper Co.	8.45c
Barton Duer & Koch Paper Co.	7.16c
Cauthorne Paper Co.	7.26c
R. P. Andrews Paper Co.	7.47c

Desk Blotting, Colored

No. 258—10,000 lbs., blue and buff, flat, 19x24—200, in wrapped bundles. Min. order, one color, 5,000 lbs.

Thomas F. Barrett & Son	6.26c
L. Hyman & Sons	5.47c
Whitaker Paper Co.	5.85c
Andrews Paper House of York	6.3c
Enterprise Paper Co.	6.29c
Graham Paper Co.	5.47c
Marquette Paper Co.	6.3c
Barton Duer & Koch Paper Co.	7.26c
Cauthorne Paper Co.	5.83c
R. P. Andrews Paper Co.	5.67c

No. 259—40,000 lbs., moss-green, flat, 19x24—200, in wrapped bundles. Min. order, 10,000 lbs.

Thomas F. Barrett & Son	6.256c
L. Hyman & Sons	5.61c
Whitaker Paper Co.	6.35c
Andrews Paper House of York	6.3c
Enterprise Paper Co.	6.29c
Graham Paper Co.	5.61c
Marquette Paper Co.	6.3c
Barton Duer & Koch Paper Co.	5.86c
Cauthorne Paper Co.	5.82c
R. P. Andrews Paper Co.	5.69c

White Stereotype Molding

No. 260—1,500 lbs., 19x24—120; rolls, 24 ins. wide (3-inch iron cores). Min. order, 1,000 lbs.

L. Hyman & Sons	7.78c
Andrews Paper House of York	11.5c
Graham Paper Co.	7.78c
Barton Duer & Koch Paper Co.	5.8c
Cauthorne Paper Co.	11.c

Red Stereotype Molding

No. 261—1,000 lbs., 19x24—40; rolls, 24 ins. wide (3-inch iron cores). Min. order, 1,000 lbs.

L. Hyman & Sons	8.69c
Andrews Paper House of York	14.5c
Graham Paper Co.	8.69c
Cauthorne Paper Co.	14.c

Oiled Manila Tympan

No. 262—20,000 lbs., 24x36—approximately 200; rolls, 38 and 48 ins. wide; 10-inch diameter; wound on wooden plugs, 1½-inch hole. Min. order, 5,000 lbs.

Cromwell Paper Co.	7.85c
Link Paper Co.	10.5c
Old Dominion Paper Co.	6.99c

Plate-Wiping, for Embossing Presses

No. 263—2,000 lbs., 24x36—100; rolls,

24 ins. wide (3-inch iron cores). Min. order, 1,000 lbs.

Barton Duer & Koch Paper Co... 7.c

Back-Lining, for Case-Making Machines

No. 264—2,000 lbs., 24x36—180; rolls, 24 ins. diameter, 37 ins. wide (3-inch iron cores). Min. order, 2,000 lbs.

Andrews Paper House of York.. 3.15625c
Barton Duer & Koch Paper Co... 3.85c
Mathers-Lamm Paper Co..... 3.437c
R. P. Andrews Paper Co..... 3.87c

High-Finish Red Sulphite

No. 265—10,000 lbs., flat, 24x36—320 and 400, in wrapped bundles. Min. order, 5,000 lbs.

Whitaker Paper Co..... 8.82c
8.57c

High-Finish Sulphite Manila Tag

No. 271—70,000 lbs., 24x36—160 to 280; flat, cut any size, min. width 24 ins., max. width 38 ins., in wrapped bundles.

Whitaker Paper Co..... 7.84c
7.59c
7.35c
Old Dominion Paper Co..... 5.599c

Calendered Tag, Manila and Colored

No. 276—1,000,000 lbs., manila, 22½x28½—approximately 148; rolls, 23¼ and 26½ ins. wide (6-inch iron cores).

Stanford Paper Co..... 6.75c
Old Dominion Paper Co..... 6.95c
Barton Duer & Koch Paper Co... 6.98c

No. 277—60,000 lbs., blue, brown, green, pink, red, salmon and yellow, 22½x28½—approximately 148; rolls, 23¼ and 26½ ins. wide (6-inch iron cores). Min. order, one color, 10,000 lbs.

Stanford Paper Co..... 7.5c
Barton Duer & Koch Paper Co... 7.73c

Jute or Super-Purified Wood Tag

No. 280—40,000 lbs., 22½x28½—200 and 280; flat, cut 22½x28½ ins., in wrapped bundles. Min. order, one weight, 10,000 lbs.

Whitaker Paper Co..... 8.08c
8.33c
Barton Duer & Koch Paper Co... 8.1c

Manila Board

No. 281—30,000 lbs., 22½x28½—400; flat, cut 17x28, 21x32, and 22½x28½ ins., in wrapped bundles with projecting colored-paper marker between each 100 sheets. Min. order, 10,000 lbs.

No bid.

Railroad Board, White and Colored

No. 302—70,000 sheets, white, flat, 22x28 ins., 4-ply, each 100 sheets fully banded, packed in wooden cases. Min. order, 10,000 sheets.

Stanford Paper Co.
(Minimum order) $22.49 per M sheets
(As specified) 24.15 per M sheets
Old Dominion Paper Co..... 24.728 per M sheets
Walker Goulard Plehn Co..... 22.75 per M sheets
24.45 per M sheets
Barton Duer & Koch Paper Co..... 24.49 per M sheets
R. P. Andrews Paper Co..... 24.74 per M sheets

No. 303—10,000 sheets, white, flat, 22x28 ins., 8-ply, each 100 sheets fully banded, packed in wooden cases. Min. order, 5,000 sheets.

Stanford Paper Co.... $34.60 per M sheets
Old Dominion Paper Co..... 35.397 per M sheets
Walker Goulard Plehn Co..... 34.98 per M sheets
Barton Duer & Koch Paper Co..... 34.75 per M sheets
R. P. Andrews Paper Co..... 35.41 per M sheets

No. 304—30,000 sheets, white, flat, 22x28 ins., 14-ply, each 50 sheets fully banded, packed in wooden cases. Min. order, 5,000 sheets.

Stanford Paper Co.
(Minimum order) $45.65 per M sheets
(As specified) 49.45 per M sheets
Old Dominion Paper Co..... 50.437 per M sheets
Walker Goulard Plehn Co..... 46.50 per M sheets
49.95 per M sheets
Barton Duer & Koch Paper Co..... 49.06 per M sheets
R. P. Andrews Paper Co..... 46.66 per M sheets

No. 305—40,000 sheets, ash gray, blue, buff, green, lemon and orange, flat, 22x28 ins., 4-ply, each 100 sheets fully banded, packed in wooden cases. Min. order, one color, 5,000 sheets.

Stanford Paper Co.... $29.90 per M sheets
Old Dominion Paper Co..... 32.989 per M sheets
Walker Goulard Plehn Co..... 30.18 per M sheets
Barton Duer & Koch Paper Co..... 29.90 per M sheets
R. P. Andrews Paper Co..... 30.56 per M sheets

Wood Bristol, Colored

No. 306—150,000 lbs., buff, 22½x28½—150; rolls, 22 ins. wide (6-inch iron cores).

Reese & Reese, Inc..... 4.75c
Barton Duer & Koch Paper Co.... 4.65c
Paper Corp. of U. S..... 5.2c

No. 307—50,000 lbs., blue, buff, gray, green, melon, pink, quaker-drab, and yellow, flat, 21x31—204; in wrapped bundles with projecting colored-paper marker between each 100 sheets.

Reese & Reese, Inc..... 5.c
Barton Duer & Koch Paper Co.... 4.65c
Paper Corp. of U. S..... 5.2c

No. 308—120,000 lbs., blue, brown, buff, gray, green, melon, pink and yellow, 22½x28½—200; rolls, 20 ins. wide (6-inch iron cores).

Reese & Reese, Inc..... 4.75c
Barton Duer & Koch Paper Co... 4.65c
Paper Corp. of U. S..... 5.2c

No. 309—120,000 lbs., blue, brown, buff, gray, green, melon, pink and yellow, 22½x28½—200; rolls, 20 ins. wide (6-inch iron cores).

Reese & Reese, Inc..... 4.75c
Barton Duer & Koch Paper Co... 4.65c
Paper Corp. of U. S..... 5.2c

No. 310—40,000 lbs., buff, 22½x28½—200; flat, cut 12x18 and 14½x17½ ins., the grain to run lengthwise of the sheet, in wrapped bundles with projecting colored-paper marker between each 100 sheets.

Reese & Reese, Inc..... 5.c
Barton Duer & Koch Paper Co.... 4.65c
Paper Corp. of U. S..... 5.2c

United States Postal Card Bristol

No. 325—6,000,000 lbs., 22½x28½—188; rolls, 33 ins. wide and 36 ins. in diameter (6-inch iron cores).

Whitaker Paper Co..... 5.4c
R. P. Andrews Paper Co..... 5.37c
Paper Corp. of U. S..... 5.68c

Pressboard, Colored

No. 351—12,000 sheets, red, flat, 24x32 ins., thickness .0140 inch. Min. order, 5,000 sheets.

Whitaker Paper Co..... $6.65 per C sheets
Walker Goulard Plehn Co. 6.69 per C sheets
Barton Duer & Koch Paper Co..... 6.53 per C sheets

No. 352—7,000 sheets, gray, flat, 30x36 ins., thickness .0300 inch. Min. order, 5,000 sheets.

Whitaker Paper Co..... $19.38 per C sheets
Old Dominion Paper Co..... 17.89 per C sheets
Walker Goulard Plehn Co..... 20.31 per C sheets
Barton Duer & Koch Paper Co..... 21.75 per C sheets

News Board

No. 360—4,000 lbs., flat, 26x38 ins., No. 100 (to be trimmed square on four sides). Min. order, 1,000 lbs.

Stanford Paper Co..... 1.98c
Whitaker Paper Co..... 1.98c
Andrews Paper House of York... 1.8c
Old Dominion Paper Co..... 1.999c
LaBoteaux Co..... 1.9745c
Barton Duer & Koch Paper Co... 1.98c
R. P. Andrews Paper Co..... 2.c
Virginia Paper Co..... 2.c

Chip Board

No. 361—800,000 lbs., 26x38 ins., No. 50, flat; cut 21½x32½, 24½x38, 26x38, 28½x34½, and 32½x42½ ins.

Stanford Paper Co..... 1.73c
L. Hyman & Sons..... 1.875c
Whitaker Paper Co..... 1.67c
Andrews Paper House of York... 1.8c
Container Corp. of America..... 1.615c
Old Dominion Paper Co..... 1.6999c
Walker Goulard Plehn Co..... 1.792c
1.942c
Graham Paper Co..... 2.12c
LaBoteaux Co..... 1.8499c
Barton Duer & Koch Paper Co... 1.68c
Cauthorne Paper Co..... 1.8358c
R. P. Andrews Paper Co..... 1.69c
Virginia Paper Co..... 1.67c
Resolute Paper Products Corp... 1.77025c

Marble Grained Lined Board

No. 362—15,000 lbs., 26x38 ins., No. 50; flat, cut 22x32 ins.

Mathers-Lamm Paper Co..... 4.744c

Strawboard

No. 363—5,000 lbs., flat, 26x38 ins., No. 50.

No bids.

Lined Chip Board

No. 364—5,000 lbs., flat, 26x38 ins., No. 50.

Stanford Paper Co..... 2.22c
Whitaker Paper Co..... 2.2275c
Old Dominion Paper Co..... 2.249c
Walker Goulard Plehn Co..... 2.642c
LaBoteaux Co..... 2.4985c
Barton Duer & Koch Paper Co... 2.2c
R. P. Andrews Paper Co..... 2.25c
Virginia Paper Co..... 2.25c

Lined Box Board

No. 365—36,000 lbs., 26x38 ins., No. 40; flat, cut 24½x34 ins. Min. order, 36,000 lbs.

Stanford Paper Co..... 2.22c
Whitaker Paper Co..... 2.1588c
Old Dominion Paper Co..... 2.248c
Walker Goulard Plehn Co..... 2.167c
Graham Paper Co..... 2.37c
LaBoteaux Co..... 2.3499c
Barton Duer & Koch Paper Co... 2.16c
R. P. Andrews Paper Co..... 2.25c
Virginia Paper Co..... 2.158c

Binder's Board, No. 1 Quality

No. 366—200,000 lbs., flat, to trim 25x30 ins., Nos. 16, 18, 20, 25, 30 and 40.

Graham Paper Co..... 3.6c
Barton Duer & Koch Paper Co... 3.6015c
Mathers-Lamm Paper Co..... 3.48c
R. P. Andrews Paper Co..... 3.6015c

No. 367—100,000 lbs., 25¾x30¾ ins., Nos. 12 and 20; flat, to trim 34x44 ins.

Graham Paper Co..... 3.6c
Barton Duer & Koch Paper Co... 3.6015c
Mathers-Lamm Paper Co..... 3.48c
R. P. Andrews Paper Co..... 3.6015c

Binder's Board, Best Quality

No. 368—50,000 lbs., flat, to trim 20x30 ins., and 22x28 ins., Nos. 18, 20, 25, 30, 35, 40 and 45.

Barton Duer & Koch Paper Co... 5.2c
R. P. Andrews Paper Co..... 5.2c

Crown Willamette Mill Builds 1,500,000 Gallon Reinforced Concrete Tank

Construction of a reinforced concrete filtered water storage tank of 1,500,000-gallon capacity to serve the Crown Willamette mill of the Crown Zellerbach Corporation at Camas, Wash., has been completed by the Austin Company. It is situated on the Columbia River, about 40 miles from Portland.

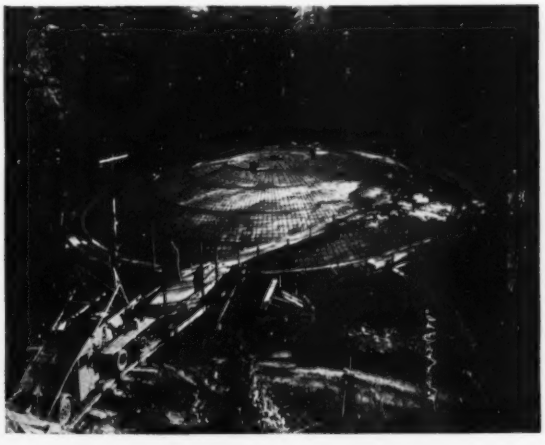
Hewitt System Employed

In order to meet requirements of this mill, one of the largest pulp and paper producing units in the Northwest, with a concrete tank suitable for long, continuous service, the Hewitt system of concrete tank design was employed. The result has been a tank costing approximately $30,000, considerably less in cost and more permanent in structure than others of comparable size built in accordance with usual engineering practice.

Under the patented Hewitt system, the tank walls were constructed in vertical sections. Recesses are provided for in the forming of wall exteriors, to permit attachment of turnbuckles to the circular rods which are placed after the tank walls and the dome have been completely poured. Spacing of these rods is provided for in the design and they are taken up with special tools so as to provide specified initial stress in the rods and in the concrete. The turnbuckle rods are covered over with gunite after the adjustments have been made. In this way the concrete is placed in compression, and difficulties caused by expansion and contraction are reduced to a minimum.

Method of Application

Particularly interesting in the Austin Company's work at Camas were the sequence and method of applying the Hewitt system. The site, on a heavily wooded hillside, was cleared, excavation completed and the concrete foundation ring and floor then poured. Then an inside form 1/7 of inside circumference of the tank was constructed. This form was braced back to a king-pin in the center of the floor and was constructed on rollers. Sectional forms for the exterior of the tank were built up so that they might be readily handled from a traveling A-frame, which ran on a track provided at the top of the tank on the movable form section. The inside movable form was pulled away from the wall by a chain block when the concrete had set in a completed section and then rolled to the next position. A movement toward the center of the tank of approximately 4 inches was provided for by a slot in the horizontal bracing connecting the form to the king-pin. Accuracy in establishing the proper position of the inside form was assured by its position with respect to the king-pin and slot, as well as by a line scribed on the floor of the tank.



HAS AN INSIDE DIAMETER OF 106 FEET AND RANGES FROM 24 TO 36 FEET IN HEIGHT.

The situation on a hillside was capitalized by engineers laying out the job, as they placed the mixer unit on the high side of the tank and maintained a system of runways which were shifted as construction progressed. In pouring the dome, they utilized a spiral runway that worked its way up the sides of the dome as it circled around it.

The tank is 24 feet high at the side walls and 36 feet in the center and has an inside diameter of 106 feet. 1200 barrels of cement were consumed on the job.

To Sell Facial Tissue Through Groceries

Harry B. Weil and Associates announce their appointment as exclusive sales agents for the newly organized grocery division of San-Nap-Pak Manufacturing Company, Inc., one of the two largest manufacturers of facial tissue in the country.

Doeskin Facial and Cleansing Tissue is the initial product of San-Nap-Pak's entire paper line to be introduced through Harry B. Weil and Associates. It is the first national brand to be distributed exclusively through grocery channels.

The Doeskin advertising program begins in January with three color pages in a group of women's publications.

The introductory broadside to the trade features the copy theme, "Why hasn't this been done defore?" "A woman enters a grocery store five times for every single visit to a drug, department, or variety store. Therefore, the grocery store, where women shop every day, is the natural outlet for facial and cleansing tissue.

Further copy stress is placed on the theme "Facial cleansing tissue is the fastest turnover and largest volume item of all retail paper products."

"The possibilities for increased volume through grocery outlets are easily recognized," stated Harry B. Weil, executive head of Harry B. Weil and Associates, "since there are approximately 450,000 retail grocery stores as compared to 50,000 drug stores."

An attractive price set-up has been worked out to insure distributors a fair margin of profit. A cooperative advertising agreement for support at point of sale has been devised, and merchandising helps are available.

CONSTRUCTION NEWS

A Summary of Vital Facts Regarding Construction, of Pulp and Paper Mills

General Construction News

Los Angeles, Cal.—The Armstrong Cork Company, Lancaster, Pa., manufacturer of cork board and other insulating board products, flooring materials, etc., has completed plans for new branch plant on tract of about 28 acres of land in vicinity of Patata street and Wilcox avenue, near city limits of South Gate, Los Angeles. Entire plant will be constructed in different units at various intervals, with Unit No. 1, for which bids have been asked on general erection contract, to consist of a main one-story manufacturing building, 85 x 240 feet, power house, office and operating building, and smaller structures. It is estimated to cost close to $300,000, including equipment. Erection is scheduled to start early in January, with completion about June. Closely following, work will proceed on Unit No. 2 of the plant. Hugh M. Clarke is vice-president, in charge.

Plymouth, N. C.—The North Carolina Pulp Mill, Plymouth, manufacturer of pulp wood products, is considering tentative plans for new addition to plant, to be equipped primarily as a finishing mill. It is estimated to cost over $250,000, including equipment. L. J. Meumier is vice-president, in charge of project.

Chicago Heights, Ill.—The Gold Seal Asphalt Roofing Company, 50 Lowry avenue, North, Minneapolis, Minn., manufacturer of composition paper and asphalt roll roofing, has awarded general contract to the Chicago Heights Company, 1530 Halsted street, Chicago Heights, for proposed new plant on State street, near city limits, Chicago Heights, recently referred to in these columns. Plant will comprise a group of five one-story buildings, for which steel framing will be furnished by the Blaw-Knox Company, Blawnox, Pittsburgh, Pa., and is estimated to cost close to $200,000, including equipment. Work is scheduled to begin at early date. A new corporation of same name, Gold Seal Asphalt Roofing Company, has been chartered under Illinois state laws with capital of $350,000, to construct and operate the plant. The incorporators include Henry Hay and W. O. Gaynor.

Pasadena, Tex.—The Champion Paper and Fibre Company, Houston Division, has work under way on the construction of a concrete tunnel, 8 x 10 feet, below the Houston ship channel, averaging 45 feet below the channel bottom, to be used for pipe line installation for water, natural gas and oil lines leading to the company mill. Construction is being carried out by the Morrison-Knudsen Company, Inc., 411 Fifth street, Los Angeles, Cal., which recently secured the contract. Installation will include a 30-inch welded steel pipe line, leading from wells at Magnolia Gardens, near Houston, which will be the source of water supply. Awards for this and other pipe lines will be made soon. Entire project will cost close to $1,500,000. Howe & Wise, Houston, are consulting engineers for project.

St. Paul, Minn.—The Minnesota Mining and Manufacturing Company, 791 Forest street, manufacturer of sand paper and other abrasive paper stocks, etc., has begun superstructure for new addition to plant, to be two-story and basement, 115 x 280 feet, for which general erection contract recently was let to W. M. Murphy & Son, New York Building, St. Paul. It is estimated to cost about $350,000, including equipment. Toltz, King & Day, Inc., Pioneer Building, St. Paul, are architects and engineers.

Chicago, Ill.—The Container Corporation of America, Inc., 111 West Washington street, manufacturer of folding paper boxes and containers, etc., has arranged for the sale of its two and three-story building at 2355 West Taylor street, Chicago, to the Apex Smelting Company, 2556 West Fillmore street, which will occupy for another line of service.

Poughkeepsie, N. Y.—The Western Printing and Lithographing Company, 1220 Mound avenue, Racine, Wis., manufacturer of paper specialties, is awarding additional equipment contracts for new steam power house at branch paper-converting plant at Poughkeepsie, recently referred to in these columns. Work on structure is being placed under way. An award for boiler units has been made to the Utica Boiler Corporation, 800 Whitesboro street, Utica. New plant will cost close to $50,000, including equipment.

Chicago, Ill.—The Volney Felt Mills, 5302 West 66th street, has arranged for increase in capital from 100 to 10,000 shares of stock, no par value, for general expansion.

Bloomfield, N. J.—An action in receivership against the Bude-Mar Mills and Manufacturing Company, 350 Hoover avenue, manufacturer of composition paper products, has been dismissed by the Court of Chancery, and operations at mill will be carried out as heretofore.

Fort William, Ont.—The Western Pulp and Paper Company, Ltd., 372 Bay street, Toronto, Ont., has plans maturing and will take bids soon on general contract for new pulp and paper mill on site selected at Fort William, consisting of several large one and multi-story units, with power house, pumping station, machine shop and other structures, estimated

to cost approximately $5,000,000, with equipment. Goggin & Ripley, Inc., 350 Madison avenue, New York, N. Y., is consulting engineer.

Toronto, Ont.—The new plant unit to be constructed by the Acme Paper Box Company, 388 Carlaw avenue, manufacturer of paper boxes and containers, recently referred to in these columns, will replace a portion of factory destroyed by fire several weeks ago. New structure will be one-story, about 100 x 200 feet, and will be used in part for storage and distribution. It is estimated to cost close to $45,000, with equipment. Bids have been asked on general contract and superstructure will begin soon. A. Sprachman, 305 Dundas street, West, Toronto, is architect.

Kenora, Ont.—The English River Pulp Company, Ltd., 372 Bay street, Toronto, Ont., has plans under way for construction of a new sulphite pulp mill in vicinity of Kenora, comprising several units to be equipped for large capacity, with power house and other mechanical buildings. New mill is estimated to cost over $4,000,000, with machinery. Goggin & Ripley, Inc., 350 Madison avenue, New York, N. Y., is consulting engineer.

Rome, Italy—Snia Viscosa, Ltd., Rome, manufacturer of fiber products for rayon production, known as "Lanital", is considering the early construction of a new mill in the United States, where site will be selected soon in the Eastern part of the country. Plant will consist of several units, including wood pulp mill for base material for production. It is reported to cost in excess of $300,000, including buildings and machinery. Company is now represented for its products in the United States by Meyer & Marks, Inc., 425 Fourth avenue, New York, N. Y.

New Companies, Etc.

Indianapolis, Ind.—The Lutz Paper Company, 235 East Ohio street, has been incorporated with capital of 1000 shares of stock, no par value, to deal in paper products of various kinds. New company is represented by Fred Lutz, address noted, principal incorporator. Other incorporators include Fred Lutz, Jr., and Joseph Caldwell.

Columbus, Ohio—The Sterling Paper Company has been incorporated with capital of 2000 shares of stock, no par value, to deal in paper products of various kinds. The incorporators include Roy A. Otey, Stephen C. and Charles R. Brown. Company is represented by F. M. Glick, 709 Brunson Building, Columbus, attorney.

TAPPI Notes

The Delaware Valley Section of the Technical Association of the Pulp and Paper Industry will meet at the Engineers' Club, 1317 Spruce street, Philadelphia, Friday evening, December 10 at 6:30 p.m. The speaker will be George J. Ritter of the Forest Products Laboratory, Madison, Wis., who will talk on "Holocellulose."

The 1938 meetings of the Delaware Valley Section will consider the following subjects: printing processes, paper formation, water treatment, fiber classification and rosin sizing.

The annual meeting of the Technical Association will be held at the Waldorf-Astoria Hotel, New York, N. Y., on February 21-24, 1938. Any member of TAPPI desiring to present a paper should notify the Secretary, 122 E. 42nd Street, New York, before December 11th.

Correction: In the book review on "Management of Inventions," which appeared on page 27 of the PAPER TRADE JOURNAL, November 11, 1937, the name of the second author should be L. Sprague de Camp.

The New England Section of TAPPI met at the Hotel Holyoke, Holyoke, Mass., on Friday, November 19. The speaker was Edward R. Schwarz of the Mechanical Engineering Department of the Massachusetts Institute of Technology, who talked on "Fibers and Modern Science." A nominating committee consisting of Frederic C. Clark, Roy C. Charron and Bob Pattison, was appointed.

The Kalamazoo Valley Section will meet on Friday, December 10 at the Park-American Hotel, Kalamazoo, Mich. John G. Callan of the Foxboro Company will talk on "Moisture Control on the Paper Machine."

Due to oversight the October meeting of the Kalamazoo Valley Section was not published. This meeting was held on October 14. R. E. Hall of the Hall Laboratories, Pittsburgh, Pa., talked on "Boiler Water Requirements." A. B. Curtis of Johns-Manville presented the interesting sound picture "Heat and Its Control."

Printing in the Americas

Of particular value to those who are interested in the graphic arts is John Clyde Oswald's new book entitled "Printing in the Americas." Mr. Oswald is at present associated with the Gregg Publishing Company of New York, and is secretary of the Graphic Arts Research Bureau, an organization affiliated with the American Society of Mechanical Engineers. He was formerly the publisher of the *American Printer.*

This book of 608 pages including 160 illustrations, is the first to make available in a single volume the important facts about the introduction and progress of printing, newspaper publishing and book making in the Western hemisphere.

The chapter titles fall into three groups. The first five deal with the beginnig of the printing craft in the Colonies, the first newspapers and bibles and the equipment of the colonial print shops. Ten chapters deal with the outstanding individuals and families that were prominent in starting and developing the printing industry. These include Matthew Day, the Green family, William Nuthead, William Parks, William Bradford, Benjamin Franklin, the Sower family and William Goddard, the founder of the postal system. The remaining chapters (there are 91 in all) deal with each of the States and of each Latin-American country and the Canadian provinces.

The typography of the book is excellent, being a clear 10-point type, quite appropriate for a text of this kind. As stated by the author, the history of printing in a country is largely the history of the country itself. The advent of the printing press in each state followed closely after the arrival of the pioneer settlers.

This book is obtainable through the Book Department of the Technical Association of the Pulp and Paper Industry, 122 E. 42nd street, New York, at $7.50 per copy.

PAPER TRADE JOURNAL
ESTABLISHED 1872

Reg. U. S. Pat. Off.

George S. Macdonald, Pres. *Joseph P. Horgan, Secy.*
Executive and Editorial Offices, 15 West 47th St., New York, N. Y.

Henry J. Berger
EDITOR

Ronald G. Macdonald
Editor Technical Section

Lynne M. Lamm
Washington Correspondent

Price, Per Copy, 10 Cents — United States, Per Annum, $4.00
Canada and Foreign Countries in Postal Union, $6.00

Member Audit Bureau of Circulations

Vol. CV New York, December 2, 1937 No. 23

COMING EVENTS IN THE PAPER INDUSTRY

NEW ENGLAND SECTION, Technical Association of the Pulp and Paper Industry—Third Friday of each month at the Nonotuck Hotel, Holyoke, Mass.

DELAWARE VALLEY SECTION, Technical Association of the Pulp and Paper Industry—Second Friday of each month at the Engineers Club, Philadelphia, Pa.

LAKE STATES SECTION, Technical Association of the Pulp and Paper Industry—Second Tuesday of each month at the Conway Hotel, Appleton, Wis.

KALAMAZOO VALLEY SECTION, Technical Association of the Pulp and Paper Industry—First Thursday of each month at the Park-American Hotel, Kalamazoo, Mich.

LOCKWOOD'S DIRECTORY

The sixty-third annual edition of Lockwood's Directory of the Paper and Allied Trades has just been issued. Due to the continued expansion of the pulp and paper industry, which has been more pronounced perhaps in the past year or two than ever before in the history of the paper business, the entries in practically all sections, and especially in the mill section, have undoubtedly been greater than in any previous edition of the directory. The expansion in the industry has been unusually noteworthy in the South and all these new mills, as well as those in other sections of the country, are noted in the mill section of the directory. Many idle mills have gone into operation, an unusually large number of going mills have been improved and the personnel of the mills in general have been changed considerably, all of which data, so far as possible, is included in the new edition of the directory.

The department of the directory devoted to mill equipment and supplies, which was started a few years ago, continues to show a healthy growth and demonstrates that this new department meets an important need of the industry. This section furnishes a convenient reference to the many varieties of supplies and machinery that are required by pulp and paper mills. All manufacturers of such supplies and equipment are eligible to listings free of charge. The compiling of these listings, however, is difficult work and in spite of the most painstaking efforts obviously some concerns which are eligible to listings may be omitted. When informed to that effect, the publishers will in all cases, of course, be glad to make corrections of such omissions.

Because of the improvement in business, it has been necessary to make many additions to the other sections of the directory including the Classified List of Pulp and Paper Mill Products, Glazed, Coated Paper and Board Manufacturers, Rag and Paper Stock Dealers, Rags and Paper Stock Consumed by the Mills, General Paper Merchants, Paper Box Manufacturers, Paper Bag Manufacturers, Envelope Manufacturers, Papeterie Manufacturers, Pulp Testing Chemists, Office Addresses of Mills and Mill Supply Houses and the Watermarks and Brands.

Two editions of the directory are issued. The regular edition includes about 1200 pages and the Travelers' edition includes about 250 pages and contains only the pulp and paper mill section, making a convenient volume for travelers to carry about. The cost of each edition is $7.50 or $7.00 cash with order.

Because of the character of this work only a limited edition can be printed. Because of this fact, individuals or concerns who contemplate ordering a copy of the new editions should do so at once. Otherwise they may be disappointed, as judging from orders already in hand, this edition is likely to be exhausted at an early date. Orders should be sent to the Lockwood Trade Journal Company, 15 West 47th Street, New York.

FOREIGN PAPER TRADE

Exports of paper and paper products from the United States during September reached a value of $2,441,824, according to data released by the Pulp and Paper Section, Forest Products Division, Bureau of Foreign and Domestic Commerce. This is an increase of 6 percent over August and 77 percent over September of last year. Most of this increase over the previous month was in greaseproof and waterproof paper which rose about 30 percent, while overissue and old newspapers gained 16 percent. Although boxboard, which was the second largest item by volume in August, declined 50 percent, this was offset by a gain of 50 percent in kraft paper, 48 percent increase in tissue and crepe paper, 28 percent in fiber and insulating board, while boxes and cartons rose to 1,388,319 pounds, a gain of almost 80 percent.

While exports of newsprint declined 40 percent from August, this still represents a gain of about 18 per cent over September 1936. Uncoated book paper showed a similar gain over last year with a 69 percent increase. Kraft paper exports represent the largest percentage gain over September 1936, increasing 250 percent. Of the 35 items reported, while only 16

showed percentage gains over the previous month, these represented the largest volume of exports. Only 10 items showed a decline as compared with the same month last year.

Exports of bleached sulphite pulp, largest single item in the shipment of paper base stocks, dropped 15 percent, while the next most important item, unbleached sulphite, increased 97 percent over the previous month. Total exports of paper base stocks increased from $2,498,706 to $2,807,426.

September imports of paper base stocks dropped almost 9 percent from August, falling from $11,731,403 to $10,738,593. However, this was still almost 15 percent over the same month in 1936. A drop in the import of pulpboard in rolls, paper board and pulpboard is mainly responsible for the decline in September as compared with August.

Rags for paper stock marked a gain of 20 percent over the preceding month and "All other paper stock" gained approximately 60 percent over the last year's total. Imports of pulpwood, while showing a slight increase of 2 percent over last year, dropped 30 percent from the August total of 247,476 cords. Imports of unbleached sulphite pulp, largest single item in paper base stocks, increased only slightly less than 1 percent, to 84,136 tons. The next largest item in this class, unbleached sulphate, dropped 11 percent from the August total of 57,644 tons.

Hollingworth & Whitney Study South

Press articles indicate that Hollingsworth & Whitney Company of Boston, Mass., has acquired control of a site of about 150 acres near Mobile, Ala., at the junction of Chickasaw Creek and the Mobile River. It is also bordered by U. S. Highway No. 90 and the State Docks Railway.

The company has been giving study to the possibilities of the South as the location of a pulp and paper mill for a number of months, and has been impressed by the Port of Mobile with its great State Docks, five railroad lines, steamship connection, and excellent labor supply. It would appear that there are ample supplies of raw materials and that the water front location will be valuable in permitting the receipt of materials, both by water and by rail.

The company, incorporated in 1882, now operates mills in the Kennebec River Valley of Maine at Winslow, Gardiner, and Madison. Its products are sulphite and ground wood pulp and a wide variety of specialty papers.

While no definite plans have been announced for going ahead and no figure for possible cost of the contemplated venture has been made public, it is understood if the project materializes, it will be a large modern development.

Consolidated Arranges Service Bonus

The Consolidated Paper Company, Munroe, Mich., has arranged a service bonus for mill employes for 1937, the third consecutive year that the company has given a bonus of this kind. Men workers will receive a minimum of $50.00 and women operatives, $35.00.

Production Ratio Report

These statistics are based upon paper production reports to the American Paper and Pulp Association:

COMPARATIVE MONTHLY SUMMARIES

Months	1937	1936	1935	1934
January	90.3%(c)	76.1%	65.8%	.....
February	90.1%(c)	77.9%	70.0%	.....
March	90.3%(c)	76.0%	70.5%	.....
April	92.1%(c)	82.3%	70.0%	.....
May	90.6%(c)	81.6%	69.4%	.....
June	87.3%(c)	80.7%	72.3%	.....
July	81.8%(c)	77.3%	64.9%	.....
August	82.9%(c)	81.5%	70.9%	.....
September	78.6%(c)	80.5%	71.9%	58.2%
October	73.7%(c)	87.6%	75.6%	64.7%
November	.....	88.0%	75.3%	61.7%
December	.....	85.9%	71.2%	59.6%
Year Average	.....	81.3%	70.5%	.....
Year to Date First 46 weeks	84.2%	80.5%	70.3%	.....

COMPARATIVE WEEKLY SUMMARIES

CURRENT WEEKS, 1937		CORRESPONDING WEEKS, 1936	
*October 16	74.8%		
*October 23	74.1%	October 17	87.6%
*October 30	68.8%	October 24	88.2%
*November 6	64.3%	October 31	89.7%
*November 13	61.0%	November 7	87.0%
*November 20	60.9%	November 14	87.6%
		November 21	89.4%

The following statistics show the number of mills reporting by ratio groups:

	Number of Mills Reporting, Current Weeks					
Ratio Limits	Oct. 16, 1937	Oct. 23, 1937	Oct. 30, 1937	Nov. 6, 1937	Nov. 13, 1937	Nov. 20, 1937
0% to 50%	114	103	102	111	146	100
51% to 100%	202	213	215	203	169	146
Total Mills Reporting	316	316	317	314	315	246

* Subject to revision until all reports are received.
(c) Basic capacity data have been adjusted to correspond with ratings reported by individual companies.

PAPERBOARD OPERATING RATIOS

According to reports from the National Paperboard Association, per cents of operation, based on "Inch-Hours", were as follows:

Mos.	1937	1936	1935	1934	Mos.	1937	1936	1935	1934
Jan.	80%(e)	61%	61%	....	July	67%(e)	69%	59%	....
Feb.	86%(e)	67%	67%	....	Aug.	74%(e)	75%	65%	....
Mar.	87%(e)	68%	67%	....	Sept.	70%(e)	76%	69%	62%
Apr.	89%(e)	70%	61%	....	Oct.	66%(e)	82%	76%	63%
May	86%(e)	68%	61%	....	Nov.	....	79%	70%	56%
June	75%(e)	68%	65%	....	Dec.	....	74%	60%	52%

Week end. Oct. 16, 1937—68%
Week end. Oct. 23, 1937—64%
Week end. Oct. 30, 1937—62%
Week end. Nov. 6, 1937—56%
Week end. Nov. 13, 1937—57%
Week end. Nov. 20, 1937—56%

(e) Basic figures revised to include new members of the National Paperboard Assn.

Pulp Shipments Arrive at Albany

[FROM OUR REGULAR CORRESPONDENT]

ALBANY, N. Y., November 29, 1937—The huge piles of pulp imports at the local port terminal were enlarged last week with the arrival of the vessel Minnequa carrying several thousand tons from ports in Finland and Sweden. Several warehouses are already filled and space for the imported pulp is at a premium. The Minnequa brought 15,362 bales from Wiborg, Finland; 1,817 bales from Helsingfors, Finland; 8,260 bales from Hernosand, Sweden, and 5,400 bales from Stockholm. Wiborg is on the Gulf of Finland, a few miles from Leningrad, Russia. Other vessels scheduled to dock here this week carrying large pulp shipments include the Korsholm from Sundsvall and Ornskoldsvik, Sweden. The Norwegian vessel Gezina also landed here this week with a large cargo of pulp from Sheet Harbor, N. S., and a large crew of stevedores has been placed at work in order to facilitate moving shipments. Port facilities are being taxed to the utmost and indications are that the foreign shipments handled this season at the local terminal will far exceed any previous year.

FASTER WAYS TO REACH
NEW MARKETS

MORE DEPENDABLE

CHINA CLAY

The paper industry drives ahead to higher values with the help of better materials and service from its source of supply . . . and the consistently high quality of Cyanamid's China Clays, combined with expert technical cooperation and exceptionally efficient delivery service, is helping many paper manufacturers speed up and at the same time stabilize their production schedules. Cyanamid's Clays are notable for their uniformity, bright color and low grit content. Wherever your plant is located we can give you fast, reliable service on Domestic Air-Floated, Water-Washed, and Coating Clays, and a complete line of English Coating or Filler Clays.

DOMESTIC CLAYS
Bulk or Paper Bags
ENGLISH CHINA CLAYS

AMERICAN CYANAMID & CHEMICAL CORPORATION
30 ROCKEFELLER PLAZA • NEW YORK, N. Y.

Section of the
Technical Association of the Pulp and Paper Industry

Edited by Ronald G. Macdonald, Secretary

Flakt Drier and Heat Recovery System*

Some Theoretical Considerations Relating To Its Development

By Harald A. Erikson[1]

The contents of this paper refer to the average conditions in the Scandinavian pulp and paper industry. In the United States and Canada today conditions in some of the mills might be different in some respects. For instance, the cost of lumber and surplus of waste fuel on the West Coast will to a certain degree make utilization of wood and economizing of heat less important in that district than in other parts of the continent. Principally, however, the statements made below may well be adapted to American mills.

American engineers may be surprised when they look at the illustrations of the buildings in this article. In Scandinavia most buildings in this industry are made of concrete. Roofs and walls are almost free from piping, making it easier to keep mills clean. This type of building is almost fireproof, and sprinklers are installed in only a few paper mills and are practically unknown in the pulp mills. Engineers in this country should, however, soon become familiar with this type of construction as some of the new mills being built are going to adopt these ideas which have been originated in Sweden.

The author of this paper will also discuss general features in the design of the drying machine room building and some arrangements of importance in achieving satisfactory conditions. The reason for this is plain and logical. Whether it is a question of making paper or pulp the drying machine room is the room where the finished product will appear. Requirements of today are very severe. Everything that might be connected with the drying and the ventilation must therefore be studied carefully and thoroughly and that is the reason why some of the things discussed below do not seem directly to belong to the drying process.

The author and the European engineers, in general are very much indebted to American engineering as regards air conditioning which must be considered to have its origin in the U. S. A. The Swedish people, however, living far up in the north where nature does not supply a rich variation of foodstuffs, and where one of the most important raw materials for human life, namely coal, is practically non-existent, have had to develop good engineering in order to help what nature did not give. That is the practical reason why Sweden today probably is using less coal for its manufacture than most other nations. Today, pulp and paper are the most important products of Swedish industry, and the whole output, except for a fairly small percentage is exported, Sweden as well as the other Scandinavian countries has had to keep up to the very highest standards of quality. It has therefore been necessary to apply and develop the principles of air conditioning. Recovery of heat has thus been driven further in Scandinavia than in most countries and the Flakt dryer is the latest development thereof and represents also at the same time a far-driven application on latest ideas in drying and air conditioning.

In the following some of the latest observations which have been made regarding the influence of the atmosphere, partly in respect to mankind, and partly in regard to different kinds of materials will be briefly set forth. Not so long ago, in the paper and cellulose industries it was found to be difficult to combine technical and economic requisites for manufacture which would not impair the comfort and well-being of the workers. However, after further investigation, it became evident that these factors could be combined. Such progress has been made in Scandinavia in the last few years that heat and power economy together with ventilation and drying show more favorable figures than are generally found on the European continent, in spite of the Scandinavian climate which is very unfavorable in this respect and also in spite of the lack of coal. The building construction in Scandinavia is of a truly high quality. In comparison with the European continent one finds that buildings there do not weather the relatively more favorable continental climate as well as buildings constructed under the Scandinavian method withstand their severe climate. This has been achieved thanks to the highly developed heating, ventilating and insulating technique in Scandinavia.

Comfort Zone for Employees and Material

Above all, it is naturally the temperature of the air, its content of moisture and warmth, as well as its circulation on which man's comfort depends. The air in the paper mills is not particularly pure. Even in an isolated paper mill located in a lake or wood district, the air can be quite impure. In several plants it was found necessary to install air

* Presented at the annual meeting of the Technical Association of the Pulp and Paper Industry, Waldorf-Astoria Hotel, New York, N. Y., Feb. 17-21, 1937.

[1] Vice-President, Swedish Fan Company, Stockholm, Sweden.

filter systems, especially in factories having high load on boilers heated with waste wood. In general, however, in respect to impurities, the air has not presented any great difficulties for the manufacturer.

The influence of the former factors on the well-being of the human body are demonstrated in Fig. 1 applicable under certain conditions. The maximum comfort in performing light work and with normal clothing in the winter is reached at about 21 deg. C. and 50 per cent relative humidity with gentle air circulation. In the summer the optimum comfort is reached at the same humidity, but at about 24 deg. C. The natural heat regulation of the human body helps man to withstand greater heat in the summer than in the winter.

With modern equipment the *comfort zone* is easily reached even at a large cylinder drying machine which gives off a large quantity of heat, chiefly by radiation, and also largely humidifies the air because of the evaporation from the machine. Earlier conditions were rather uncomfortable; people had to shed most of their clothing. To a certain degree the natural selection helped industry. People who could not stand the abnormally hot and humid atmosphere did not "thrive". With the modern hoods and ventilating equipment it is, however, possible to effect the heat radiation and humidity to such an extent that temperature as well as saturation of the air will become as agreeable as in any other locality.

In regard to materials also, it might be well to speak of the comfort zone. In a diagram showing the conditions of the air, it would mean that zone in which the material obtains its most suitable qualities for the purpose for which it is intended. The author has made researches during the last few years, especially on newspaper, in a number of Scandinavian factories, in order to obtain information about this comfort zone. For this purpose it was

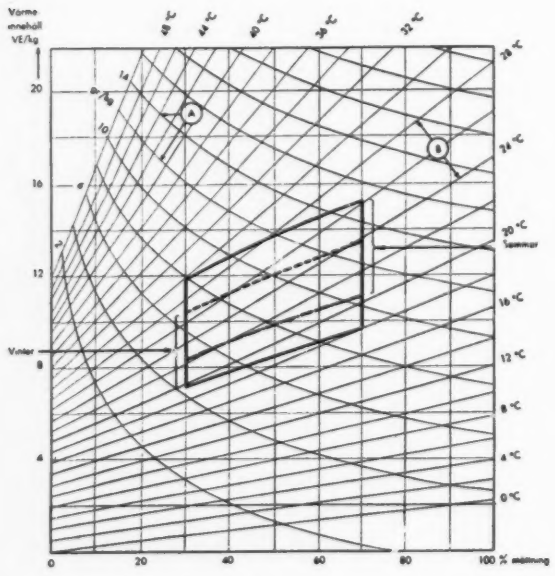


FIG. 1.

Comfort Zone for persons normally clothed at light work, and at a maximum air velocity of 0.15 m/sec. and a barometric pressure of 760 mm. Hg. Curves A = Water content of air, g/kg dry air. Curves B = air temperature degree C.

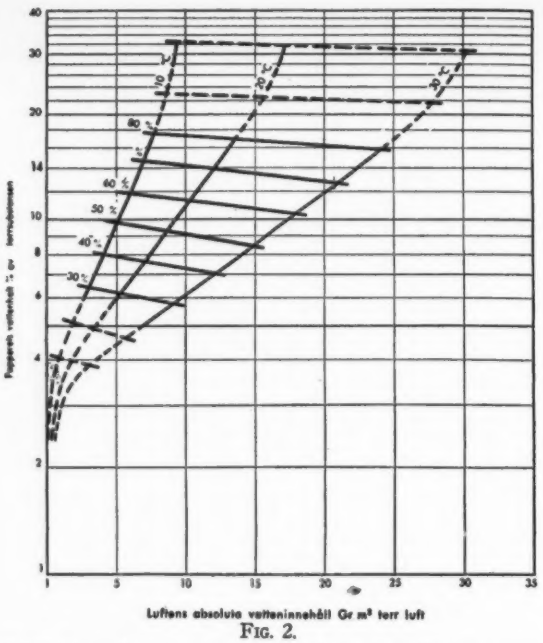


FIG. 2.

Equilibrium moisture content of newsprint in air of different temperatures, absolute and relative humidity.

necessary to find out the paper's water content in a constant atmosphere. Fig. 2 shows approximately the relationship between the moisture content of newsprint and the absolute and relative humidity and temperature of the ambient air. Similar researches had been made previously, but no definite results were obtained, because the influence of the absolute and relative humidity was not fully taken into consideration. In some diagrams the absolute humidity alone was the basis and in others the relative humidity only was used. Full comprehension is attained by taking absolute as well as relative humidity together with temperature into the picture, as shown in Fig. 3. For sulphite and sulphate pulp and greaseproof as well as for hand made paper a corresponding diagram can be plotted. The only difference between chemical pulp and newsprint is that the hygroscopicity is lower in the former as the digesting process reduces the ability of the fiber to hold water.

In a diagram similar to that described, a comfort zone could be indicated. It is then necessary to establish the limits of the zone, that is, how far down and how far up the humidity or temperature may go. As a minimum at 20 deg. C, we could choose a saturation of 35 per cent, below which humidity according to experiments made, folding, tearing, and bursting resistance as well as tensile strength is rapidly reduced. The maximum saturation could be considered to be 65 per cent. Beyond this point only folding endurance is raised, and this is of course of minor importance. The maximum bursting and tearing resistance is found at 40 to 50 per cent relative humidity and declines thereafter rather rapidly. These two degrees of humidity correspond approximately to those necessary for man's well-being. These two limits correspond to 7 per cent respectively 12.5 per cent moisture content on oven-dry substance of newspaper or 6.5 per cent respec-

tively 11.2 per cent on the gross weight. Experienced paper manufacturers, who have given these questions a closer study, are aware of the fact that several difficulties are encountered at the manufacture as well as at the after-treatment of the paper, if the limits are exceeded.

In regard to the temperature, it is naturally more difficult to give satisfactory figures. As, however, paper usually is used in rooms where human beings stay, the temperature range is more or less definite because of the well-being of the occupants. If the conditions differ too much from this temperature zone, this will unfavorably affect the paper. Its dimensions may vary. If it is warmer, its moisture content is lowered; if colder, the paper absorbs moisture causing further trouble. If all factors are taken into consideration a zone is reached as shown in Fig. 4. *Comfort zone for Newsprint.* It should be noted that these figures should only be taken as approximate. Efforts should be made to arrange manufacturing and other working conditions in such a way that the paper, if possible, is always within the zone indicated. Apart from such processing of the paper at which a high degree of folding resistance is important, it could be said, that the optimum of quality is found at an air temperature of about 21 to 24 deg. C and a relative humidity of 45 to 55 per cent.

Conditions in many instances in the industries at large vary considerably from the figures derived from the foregoing. In transportation and storage, paper is often greatly abused. It is perhaps stored for a long period at a temperature close to the freezing point. Warehouses are very seldom furnished with heating systems or air conditioning devices. Consequently both temperature and humidity generally vary considerably during the storing. The paper therefore absorbs much moisture and a great percentage of its weight is wasted because of curling. On the other hand if it is stored in a room which is too dry, it loses some of its moisture. Most newsprint today does not contain more than about 7 per cent of moisture. From the graph it is readily understood that such a paper cannot be very desirable, as it is almost out of the comfort zone. Printers are satisfied to pay the same price per ton of paper even if they are getting less square feet. That means they prefer to pay the price of paper for pure water as the savings in waste and the advantages on the printing machine very well covers the increased cost of the paper itself.

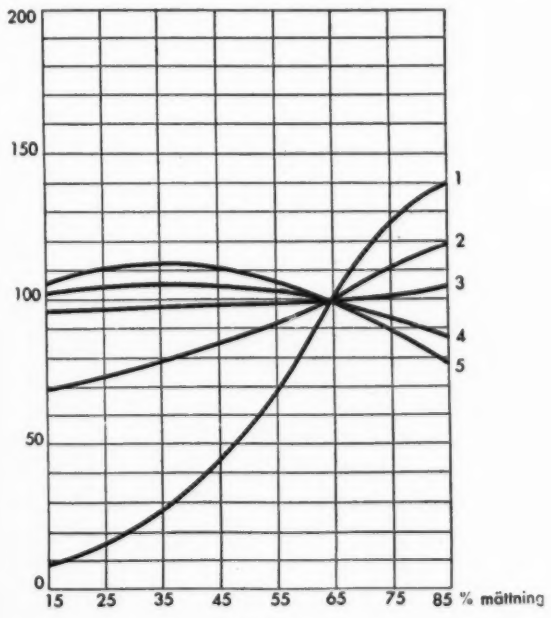


FIG. 3.

Properties of paper at different relative humidities of surrounding air. Curve No. 1: Folding endurance; No. 2: Tearing resistance; No. 3: Moisture content of paper; No. 4: Bursting strength; No. 5: Tensile breaking strength.

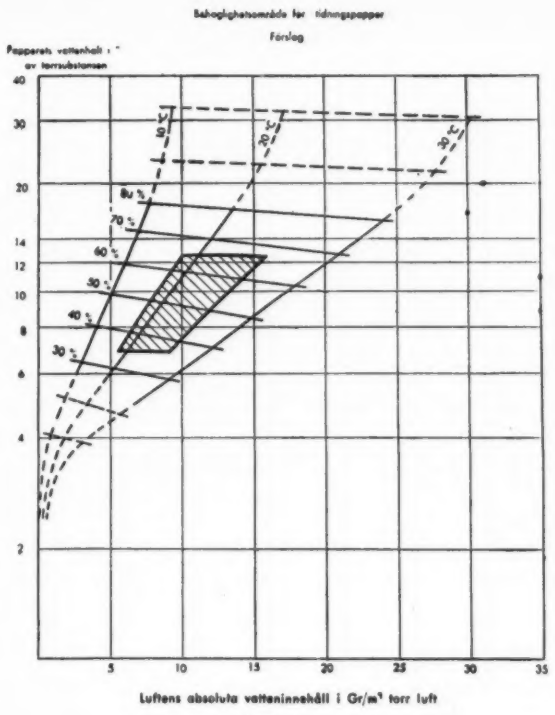


FIG. 4.

Comfort zone for newsprint.

When comparing the graph of the comfort zone with the recommendations in the code for testing paper and pulp as regards atmospheric conditions in the testing room, it is evident that temperature and humidity prescribed do not correspond to the optimum of the comfort zone. On the contrary it is a fact that tests today are made at the upper limit of the comfort zone, found by the author's investigations.

Everything seems to indicate that an atmosphere of about 20 deg. C and 48 per cent relative humidity in wintertime and 25 deg. C and 52 per cent relative humidity in summertime should give the most favorable conditions for most kinds of sorting, storing and use of paper. (It should be carefully noted that for certain converting processes of paper these figures do not comply with requirements.) In the testing code, the requirement of a humidity of 65 per cent could be criticised. As, however, different points must be taken into consideration when settling the testing stipulations the author will confine his criticism to ask whether alteration of the code could be justified. There is no more grave reason for criticising the temperature. From a purely practical point of view it can, however, be stated that it is

expensive to achieve 20 deg. C and 65 per cent relative humidity in the summer in most countries, and if 50 per cent relative humidity should be accepted as better than 65 per cent, it would be even more difficult to maintain the stated temperature. Studying simultaneously the comfort zone diagram for man, and the comfort zone graph for paper, it appears that 25 deg. C in testing during the summer can very well be used instead of 20 deg. C. An atmosphere in the summer of 25 deg. C and 50 per cent relative humidity seems to be more correct in regard to the paper, and so also in regard to the comfort of the machine tenders than 20 deg. C. and 65 per cent. With the requirements proposed the laboratory equipment, for one thing, would be cheaper, since it is simpler and cheaper to construct an air conditioning plant for 25 deg. C and 50 per cent humidity than for 20 deg. C and 65 per cent. With the existing conditions it is almost always necessary to furnish the laboratories with cooling machinery which could largely be avoided if the testing were accomplished at 50 per cent humidity and if the temperature could vary between 20 deg. C. in the winter and 25 deg. C. in the summer.

Drying and Conditioning

With hygroscopic materials, different ranges as regards water content appear which must be kept in mind in order to get a clear understanding of their treatment. There are especially two points at which the characteristics of a material change. They are *the limit of wetting* and *the limit of humidifying*. Upon immersion in water, a material becomes soaked and water is absorbed up to a certain maximum limit which can be called the limit of wetting. If still more water is supplied, this always runs off freely. Above this limit water can be removed by mechanical means, and below the limit, the water content can be reduced by drying. Continuing the drying process, the other point is reached, the limit of humidifying. In the range from the *wetting point* to the limit of humidifying water appears, partly hygroscopically and partly as free water. The free water exists on the surface of the material as well as in the pores. Since the free water appears between these points, one could call this range the *wet stage*. Below the limit of humidifying, water no longer exists freely, but only hygroscopically.[2] The limit of humidifying is therefore defined as that point at which the surface of a substance is covered with a water film of maximum one molecule's thickness. With fibrous materials this point is usually termed *point of fiber saturation*. Below this stage the material does not feel wet, but is usually called damp. As hygroscopical materials, in general, consist of a mass of more or less uneven consistency, it is usually very hard exactly to determine the limit of humidifying.

Within the hygroscopic range the moisture content of a substance always depends on the temperature and the humidity of the surrounding air, in such a way that certain conditions of the atmosphere always produce a certain moisture content of the material, the so-called *equilibrium moisture content*. (See Fig. 2.) Such an atmosphere in relation to the material can be termed *moisture neutral*. If the conditions of the atmosphere do not correspond to a certain moisture content in the material, the atmosphere in relation to the material is called *moisture active*. If the moisture content of the material is greater than equilibrium moisture content, the material will dry; if less, it becomes more moist. When a material is not immersed in water, but is in a gaseous atmosphere, the material does not remain in the wet stage but is gradually passing into the hygroscopic stage. Only in the case that the relative humidity of the atmosphere is 100 per cent, the material can remain in the wet stage. Consequently, when the moisture of the material is once lowered below the limit of humidifying, the material cannot acquire additional moisture beyond this point, as long as it remains in the gaseous atmosphere.

In general materials are referred to as moist or dry. The meaning hereof has probably never been generally understood. On the basis of collected data it could be said that a substance feels moist, when it has a moisture content corresponding to an air humidity of between 65 and 100 per cent. In the pulp and paper industry both in technic and trade a material is considered to be "air dry" at 10 per cent moisture content calculated on the gross weight, corresponding to 11.1 per cent on the oven-dry weight. This corresponds approximately to an air saturation of 60 per cent.

The theoretical relationship between atmospheric and moisture content of a substance, as described above, is of the greatest practical value for two such important processes as drying and humidifying. By drying is meant the reduction of the moisture content of a substance by means of heat application. This applies to the entire wet stage down to the lowest point of the hygroscopic range. Humidifying according to the foregoing can only take place within the hygroscopic stage. Practically speaking the terminology is further extended here so that by drying is meant a reduction of the moisture content from the wet range somewhat below the point of fiber saturation. Drying within the hygroscopic stage as well as moistening are both usually termed *conditioning*. Drying should consequently mean a substantial reduction of the moisture content of a substance and conditioning stands for, so to speak, an exact adjusting of the moisture content to the desired value. As an example of this one could say that dryers in a saw mill were really "driers", inasmuch as driers for carpentry and furniture manufacture, etc. could be termed "conditioning equipment". When treating a substance properly it should be observed that some parts may require drying and other parts moistening in order to get a uniform moisture content.

The drying proceeds in an entirely different manner in the wet stage than in the hygroscopic stage. In the former the process can be driven relatively fast without endangering the quality of the material. In this stage the material acts as a so-called "wet body". The evaporation takes place rapidly, but the temperature of the material can not exceed the temperature of the wet bulb thermometer, even if the surrounding atmosphere is much warmer. When the fiber saturation point is reached, the material is no longer cooled off by the evaporation of the free water. When this point is reached, the water must

[2] The lowest limit of the hygroscopic stage should, in reality, be 0 per cent moisture content. With many hygroscopic substances, however, this point can only be achieved by raising the temperature above the boiling point. A material can hold water in another form than hygroscopic water, namely crystal water. For paper, therefore, the lowest point of the hygroscopic stage does not lie at zero, but at about 3 per cent water content.

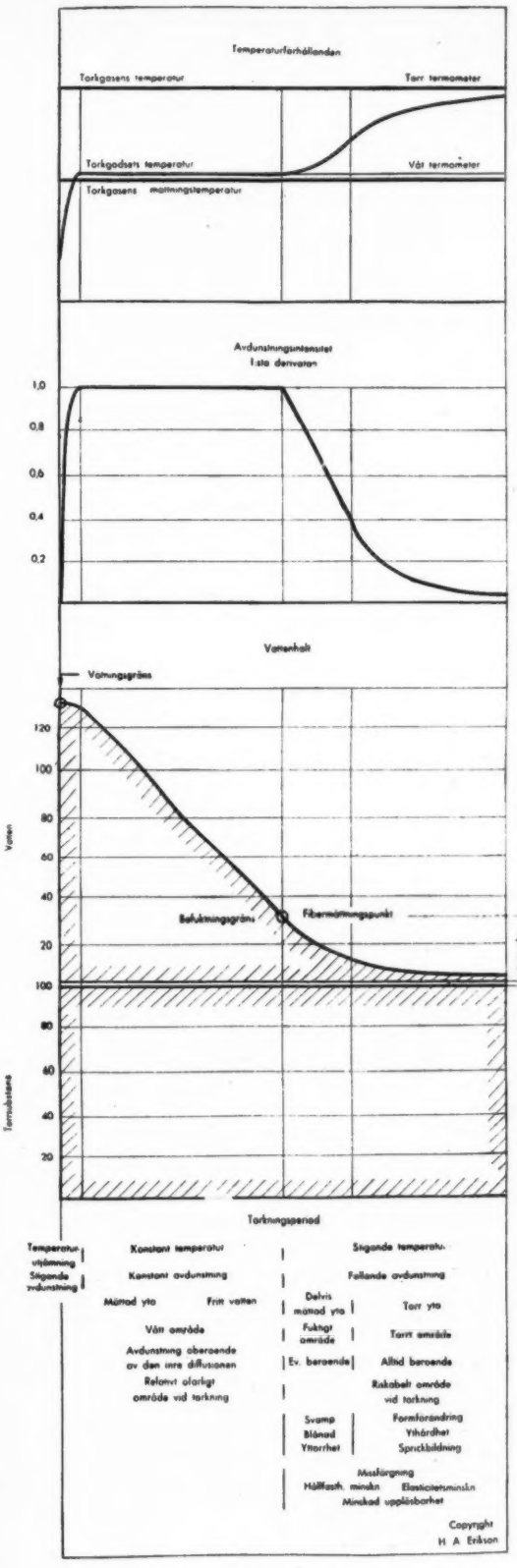


FIG. 5.
Schematic diagram for the drying process.

then transfuse from the inner parts of the material to the surface, where the temperature begins to rise. The temperature then continues to rise and approaches the temperature of the drying air (dry bulb thermometer) and reaches this temperature when the substance is completely dry. This means that a hygroscopic material seldom has the same temperature as the surrounding air, but is cooler.

The fiber saturation point is not reached throughout a whole fiber at the same time, and still less simultaneously through all parts of a substance such as paper and pulp. Naturally it occurs much sooner in the fiber at the surface of the substance than in the center of same. Within a drying apparatus, the drying power and other conditions vary during the process and a drying-curve for a drier is therefore very difficult to study. Generally it does not present a clear picture of what takes place. Fig. 5 illustrates the drying process in a drier where the drying atmosphere was held constant. This diagram shows plainly how under the drying process the different zones can be distinguished within which the conditions and quality of the substance are affected in different manners. At the beginning of the process, a temperature equalizing stage occurs in which the temperature of the substance rapidly is brought into equilibrium with the wet bulb temperature. Thereafter, a stage comes where the water content decreases constantly, that is to say, in which the drying rate is constant. These two stages lie within the wet range of the material. Evaporation takes place at a constant rate and at a constant temperature, that of the wet bulb thermometer. The drying is accomplished in this range by *evaporation from the saturated surface.* This stage is also termed the *constant rate period.*

As soon as any parts of the surface are no longer wet, the water transfuses from the interior of the material to the surface. Consequently the rate of the transfusion of water from the interior determines the rate of drying. As this rate is almost always lower than the evaporation from the saturated surface, the average drying rate is reduced. As the surface of the material is no longer entirely saturated with free water, the temperature of the substance begins to rise. This stage is called *falling rate period, evaporation from unsaturated surface or drying at rising temperature.* This zone is therefore located partly within the wet stage of a material and partly within the hygroscopic stage. When all the free water has disappeared from the surface, the rate of evaporation generally reduces further, as it depends entirely on the diffusion of the interior water. This stage is usually called *evaporation by interior diffusion* or *sub surface drying.* The different stages in the drying diagram may vary, depending on the rate of the interior diffusion. With a given consistency, or with great density the interior diffusion can be so low that the zone of decreasing rate of evaporation disappears altogether. The velocity of the air affects the evaporation from the saturated or partly saturated surfaces. Increased evaporation is obtained by increased velocity. This, however, is not the case where the interior diffusion predominates.

Flakt Driers for Drying Pulp

From the foregoing discussion it is evident that drying must be carried out with great care. It is also obvious that the surface fibers during the dry-

ing may have passed below the saturation point while the average water content of the bulk of the material is still very high. It has been found in drying on cylinder that the fiber saturation point of pulp amounts to about 30 per cent moisture content figured on the dry substance. It has also been found on cylinder driers that fibers have been damaged already at an average moisture content of 80 per cent oven-dry which shows that the interior of a pulp sheet can hold more than 3 times the water content of the surface layers. It is well known that cylinder drying is hazardous, but this figure shows that the damage begins much earlier during the drying than is usually expected. Between the pulp web and the cylinder surface, there is of course an insulating stratum of superheated steam and air which protects the pulp web. Such a stratum does not, however, prevent an overheating of the pulp due to the radiation from the cylinder. As the drying continues, the insulating stratum diminishes, and it is thus evident that cylinder drying becomes unsatisfactory, especially at the end of the drying process.

Air-drying of pulp has therefore been adopted rapidly since the Flakt drier proved itself to be both economical and practical. By this drier the pulp is protected not only by a limited wet bulb temperature under the drying process, but also by the fixed limitation of the temperature of the drying air. As air is a poor heat conductor, the rate of drying is retarded during the entire process and especially at that point where the quality of the substance is more prone to damage. Because the pulp in no way comes into direct contact with hot drying surfaces but only receives heat from the air, the temperature of the surfaces as well as of the interior of the pulp rises slowly to a maximum which is not dangerous. The surface remains open and porous. By this, the strength of the pulp is preserved. The pulp becomes easily suspended in water and its color is brighter than that of cylinder dried pulp. Aside from two installations of Minton machines, the Flakt drier has therefore been installed in all the new mills built in Scandinavia during the last few years. As the method used in the Flakt drier is especially advantageous at the stage when the pulp starts leaving the wet zone, a large number of cylinder machines have been equipped with a special type of Flakt drier, the so-called additional Flakt drier in which the most dangerous

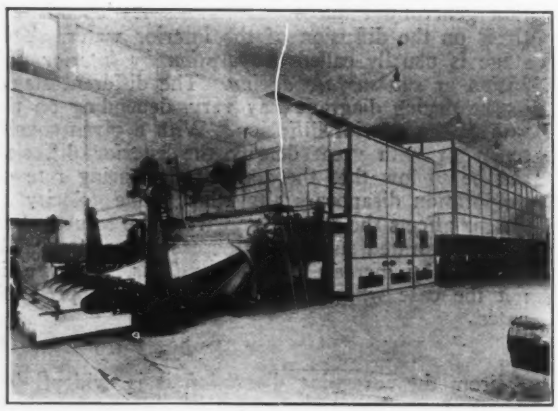


FIG 6.
Cylinder drier with hood and additional Flakt drier.

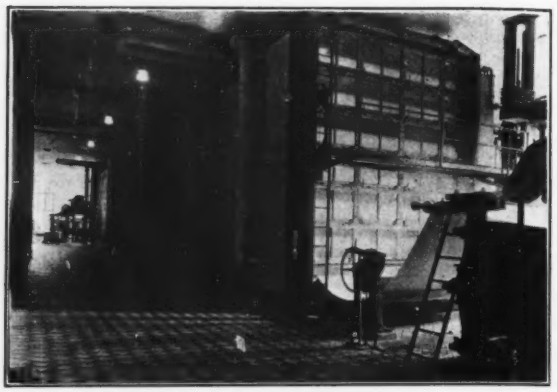


FIG. 7.
Flakt drier for 110 tons sulphite pulp per day.

part of the drying takes place. Up till now, more than 100 Flakt driers in all have been installed.

Mechanical Pulp and Lumber

It is an old experience that blueing occurs in summer on wood stored in lumber yards. Difficulties have also been encountered in ground wood mills during the last few years. Since mills more and more are grinding at high temperature mold and fungus are more often met in mechanical pulp. In the treatment of this problem Fig. 2 showing the equilibrium moisture content of newspaper stock should be helpful. This same graph holds good also for mechanical pulp and pine wood.

As long as the water content of the wood or pulp is above the fiber saturation point, these materials are surrounded by an atmosphere of 100 per cent saturation. If the moisture content drops somewhat below the fiber saturation point, the saturation of the atmosphere will remain in the vicinity of 100 per cent. As about 80 per cent relative humidity, and temperature prevailing in the warmer months of the year represent very favorable conditions for the development of mold and fungus, one can see from the graph that there is a risk of damage to the material as long as it is not dried down to 17 per cent of the dry weight, or 14.5 per cent of the gross weight.[3] At the saw mills lumber is usually stored in yards until it is dry enough for shipping. Since the drying proceeds slowly after the material is dried below the fiber saturation point, and since the drying potential of the outdoor air in lumber yards is very poor, especially in the warmest months, there is always a risk of discoloring at open air seasoning. "Shipping-dry" generally refers to lumber with 18 to 20 per cent moisture content of the gross weight, corresponding to 22 to 25 per cent of the dry weight. During transportation, of course, the drying may continue to a certain extent, but the slow outdoor drying of lumber is rather hazardous. It is a well known practical fact that the quality of lumber suffers very much during July and August, months during which the temperature rises above ordinary room temperature, and the relative humidity very often is something between 80 to 90 per cent. It is thus quite obvious that artificial dry-

[3] It might probably be of interest to pulp makers to know that 14 per cent moisture content on the gross weight or the same as for pulp is the highest moisture permitted when storing wheat in grain elevators. The grain will otherwise be rapidly destroyed, especially at high temperatures.

ing is the only method to be used in order to prevent damages on lumber and ground wood pulp.

In regard to ground wood pulp it is evident from the graph in question that risk of fungus growth is ever present in wet pulp. Chemical treatment to prevent fungus could of course be employed but drying of the pulp down to 14 to 15 per cent water content of the gross weight usually prevents fungus growth. As the pulp always is to be suspended, drying to the figure mentioned above is sufficient.

The equilibrium diagram can also be used in connection with driers for carpentry and furniture manufacture as well as for other purposes. These installations, however, lie beyond the scope of this article.

Heat and Power Economizing and Recovery

Heat recovery equipment for ventilating installatons is now so well known that there is no need to go deeper into that subject in this article. All large mills have this equipment, and in all, many hundred units have been installed.

In connection with pulp drying, a new type of heat recovery equipment has been developed, namely, the *hot water spray apparatus.* Heat from the moist exhaust air leaving the driers is utilized to prepare hot water for the showers at the wire. The pulp and water are thereby preheated, resulting in a direct economy. By preheating the water run-off is increased on the presses, reducing the quantity of water to be evaporated in the drier. The size of the drier for any given production can be reduced, and the steam consumption per ton of pulp is decreased. The hot water spray apparatus has also another important advantage, namely, that it makes a preheating of the pulp in cold weather possible, so that the capacity of the drier remains the same in the summer as in the winter. This equipment has had an important effect on the wet section. These sections might be said to show special features in the U. S. A., Scandinavia and other countries. The capacity of the Scandinavian wet section is usually a little above 30 long tons per day and meter working width, and the maximum lies at about 40 tons. In America the production of the wet sections for cylinder driers is decidedly higher. On several machines the figures are about 50 tons per meter width and the record is held by the Rainier Pulp and Paper Co., Shelton, Wash. whose production is up to 60 tons of pulp per meter width. In systematically comparing these two types of wet sections one finds that the Scandinavian section is the most economical, if the whole machine is taken into consideration, including the drying unit. With a wet section of the KMW's type and the Flakt drier system combined with hot water spray apparatus, a dryness of 45 per cent oven-dry (50 per cent air-dry) after the wet section is reached. With the American machines the absolute dryness does not seem to exceed 36 to 40 per cent. This shows that the water content which must be evaporated is much less with the Scandinavian combination of drying machines. For drying up to 90 per cent dryness, the American type of machines require a fairly large drying unit.

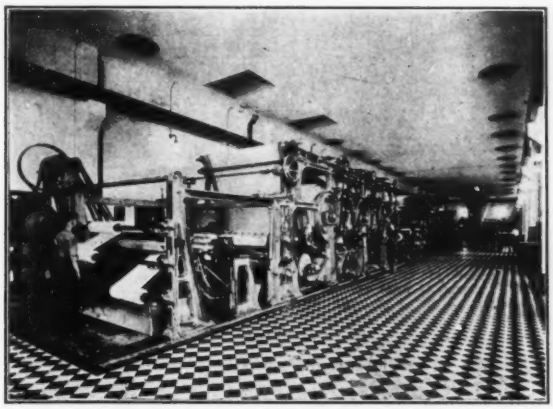


FIG. 9.
Drying machine room with cylinder machine for high grade paper.

Steam and power economy in the different departments of the paper and pulp industry, as well as the air requirements are shown in the following tables[4] on the following page:

Buildings and Equipments

As water in varying degrees is found in all the different departments of paper and pulp mills, and

[4] The tables are obtained from Report No. 76 to the World's Power Conference in 1933 on "Ventilation, Heating and Drying in the Scandinavian Pulp and Paper Industries," by H. Erikson.

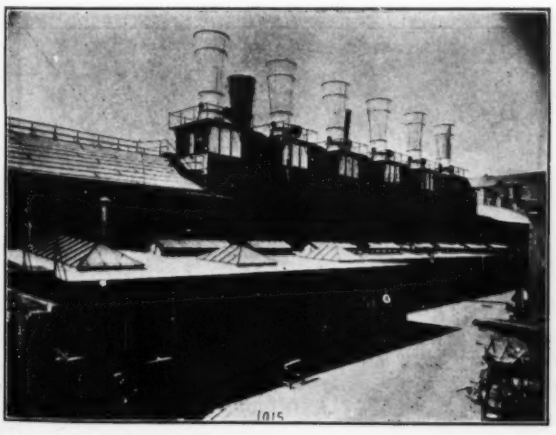


FIG. 8.
Heat recovery installation for newsprint machine with an output of 130 tons a day.

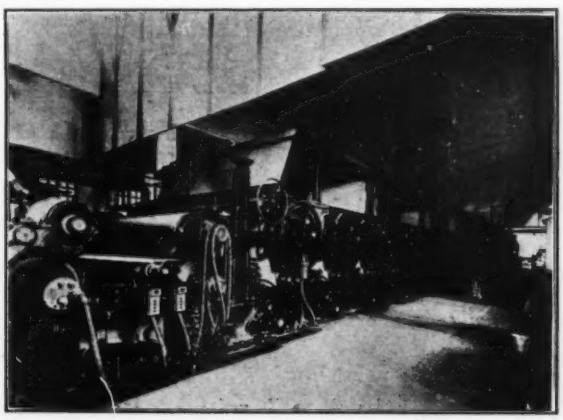


FIG. 10.
Newsprint machine with screens.

NEWSPRINT MILLS

Premises	Newsprint mills including grinding rooms: Live steam, tons per ton paper	Power, kw.-hr. per ton paper	Air, tons per ton paper
Wood room	0.02–0.04	1.0	2–5
Grinding, screen rooms	(1, 2) 0.10–0.15	(3) 1.5	12–25
Beater room, Drying room, Finishing room } Alt.-Partitions	2.95	25–30	90–150
Beater room, Drying room, Finishing room } Alt.-Hood	2.85	12–15	40–60
Sundry	0.1	.....	.....
Total sum for:			
1. Partition	3.2	28–32	110–180
2. Hood	3.1	15–18	55–90

(1) Grinders, electric or turbine.
(2) Eliminated if heat recovery is installed.
(3) Increases to 3.5 kw. per ton if heat recovery is installed.

PULP MILLS

Premises	Sulphite mills: Live steam, tons per ton	Power, kw.-hr. per ton pulp	Air, tons per ton pulp	Sulphate mills: Live steam, tons per ton	Power, kw.-hr. per ton pulp	Air, tons per ton pulp
Wood rooms	0.02–0.04	1.0	2–5	0.02–0.04	1.0	2–5
Digester rooms with drain bins or diffusers	0.01–0.02	0.5	5	0.01	4–8	(1)15–25W (1)50–150S
Screening rooms	.....	1–3	10–20	...	1–3	(2)10–20
Soda recovery houses	.....	...	.....	Ventilation problem not yet solved.		
Bleaching rooms	0.02	1.0	.....	...	...	.....
Sundry	0.05	0.5	.....	0.05	0.5	.....
Cylinder driers: (3) with hoods	1.55	10–12	23–35	1.55	10–12	25–35
with enclosures	1.35	5–7	12–15	1.35	5–7	12–15
Fan driers	1.15	13	6–7	1.15	13	6–7
Total sum: for cylinder driers with hoods	1.65	14–16	42–65	1.65	17–25	100–235
with enclosures	1.45	8–13	29–45	1.45	12–20	90–215
for fan driers	1.25	16–19	23–37	1.25	20–26	85–210

(1) Greater part circulates during the winter.
(2) Air usually supplied by the ventilation and heat recovery system of the drying machine.
(3) The figures in regard to drying are based on drying from 43 per cent to 90 per cent dry content. This result is at present reached with larger drying machines.

in certain rooms in very large quantities in form of vapor, it is evident that much attention must be devoted to the effect of moisture on the building construction. Great care must be taken in designing ceilings, walls, and windows. In the first instance they must be designed properly, as to the shape, in the second place walls and especially roofs must be adequately insulated, and in the third place the ventilation installation should be carried out in such a manner that the building structure so to speak is kept within the comfort zone of the different materials used for the building.

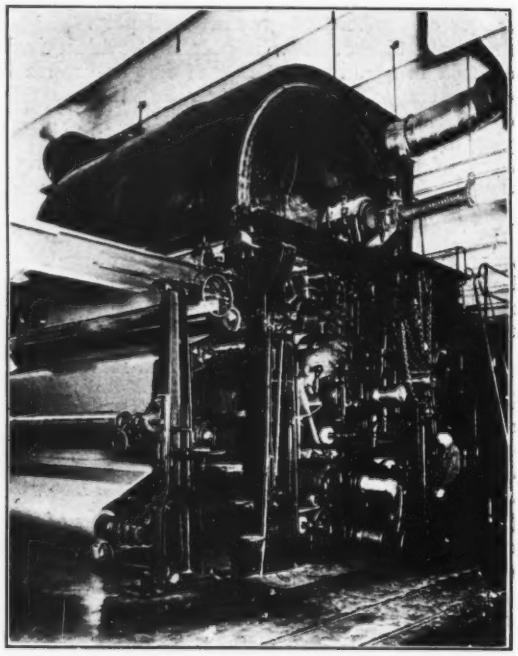


FIG. 12.

Hot air hood for Yankee-machine with a cylinder diameter of 4200 mm. and a working width 4700 mm.

The design of the roof construction in the last few years has been developed in a special manner. It has been worked out so that practically nothing of the ventilation apparatus in the drying machine room is visible. At the same time it has been possible to economize with space and to keep the building very clean.

Regarding the insulation it should be remarked that the modern porous insulation boards have been extensively used. They offer a relatively inexpensive and exceedingly good insulation against heat losses, especially when used in the ceilings and on the roofs. New types of windows have been developed. The

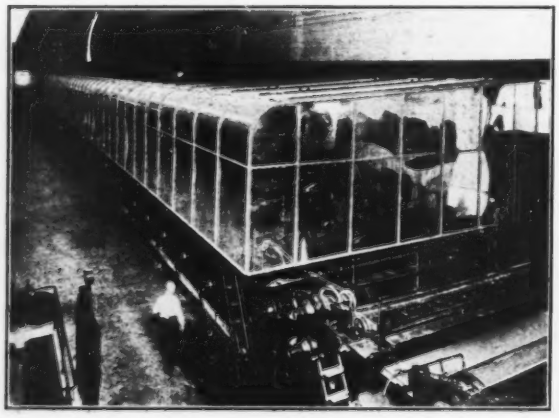


FIG. 11.

Hood for newsprint machine with an output of 175 tons per day.

FIG. 13.

Air conditioning installation with hygrotempers for a sorting room.

shape of the window has been altered as well as the position of the window frames in the walls. The ceilings and walls in the factories are now absolutely dry and the windows in mills recently built show practically no signs of condensation.

A number of pictures are shown herewith demonstrating some different types of installation, of units and of drying machine rooms. About ten years ago moisture, condensation and dust damaged buildings as well as products in this industry and made working conditions extremely disagreeable with water, dirt, and waste material covering the floors. The paper and pulp industry has now become a truly clean and wholesome industry. Pulp mills as well as paper mills today have for instance drying machine rooms which more resemble modern laboratories rather than factories in general. Further description is unnecessary, the illustrations speak for themselves.

As regards equipment it can be mentioned that heat recovery units were originally installed in order to attain the greatest possible heat saving. Gradually, however, the quality of the ventilation developed further and in the last few years the conditioning of the air and of the product has come more into the foreground. In order to obtain proper atmospheric conditions for the product in the rooms of a mill the *hygrotemper* was developed in Scandinavia during the last few years. Further the heat recovery units are being improved so that a constant atmosphere, unaffected by the variations in the outside air, will be automatically maintained.

This is of great importance for all kinds of papers, especially for newsprint, which is particularly hygroscopic.

The most interesting innovation in the equipment for this field is the Flakt driers. The principal drying theories on which the Flakt driers are based have been discussed in the beginning of the article. In this connection no description regarding their practical construction and functioning will be given other than reference to other articles about them.

As mentioned above, two types of Flakt driers are made, namely, the complete units with horizontal pulp conveying which are connected to the wet sections and dry the pulp to its final dryness, and the additional driers with vertical pulp conveying which are combined with existing cylinder machines. About 30 complete Flakt driers have been installed. The first experimental drier had a capacity of 12 tons per day. Most of the driers are now made for capacities of 100 to 150 tons per day. The two largest driers have each a capacity of about 180 short tons per day and are being installed in the new sulphate mills in Oulu, Finland. Flakt driers are at present installed in ten different countries. Most of them have hitherto naturally been erected in Scandinavia. The first Flakt driers installed on the American continent are running at the St. Regis Kraft Company pulp mill in Tacoma, Wash. The largest installation of Flakt driers is found in Sweden in the Ostrand Sulphate Mills where now four 140-ton machines are erected. These machines are equipped with wet sections of type KMW (Karlstadt Machine Works).

Hoods for cylinder driers and paper machines have lately come more and more into use. There are several reasons for this. One reason is the better control of drying and ventilation, and another is the new kind of materials used in their construction. The new hoods are very efficient and economical. As their appearance can truly be termed attractive, and as no troublesome dust collects on them, the latest paper machines have all been equipped with hoods.

In paper manufacturing, above all in the manufacture of newsprint attempts are being made to condition the paper directly on the paper machine. At Holmen's Bruks mills in Sweden some experiments have been made but no outstanding results have yet been obtained. Research is, however, in progress along new lines.

U. S. Government Paper Specifications

One of the most important functions of the National Bureau of Standards is technical assistance in the development and improvement of purchase specifications required by the United States Government. Most of the contracts for supplies are awarded on the basis of competitive bidding on materials specified in detail.

Paper and paper articles constitute one of the largest classes of the purchase items, and the paper section of the Bureau has continuously devoted much time to specifications work. This includes services as members of committees, and testing and research to obtain required technical data or to develop testing apparatus.

Most of the paper specifications are dealt with by two committees. Those for papers used by the Government Printing Office are formulated by a committee appointed by the Joint Committee of Congress on Printing. This is composed of representatives of the Joint Committee, of the Government Printing Office, and some of the executive departments. A committee appointed by the Federal Specifications Executive Committee of the Procurement Division, Treasury Department, deals with all other papers and with paper articles. This committee is composed of representatives of the Federal Specifications Executive Committee and all executive departments. These committees meet regularly for consideration of proposed new specifications or changes in existing ones.

There are over 150 Government specifications covering a wide variety of papers, paperboards, and paper articles, and the technical requirements of a large proportion of them are based on information developed in the Bureau's paper section. The development work is always done with the cooperation of the industrial organizations concerned if this can be secured, and with very few exceptions, they have been most helpful in making certain that proposed specifications are in accordance, as far as possible, with commercial standards of quality and practice. In some cases compilation of existing knowledge is sufficient, but generally testing or research is necessary. The published reports of Bureau work of this kind include test data and specification recommendations for record, printing Braille, caselining, sheathing, envelope and bag papers, and for windows of envelopes, fiber building boards, binders board, and paper towels.

Copies of the specifications for papers used by the Government Printing Office can be obtained from that office free of charge. A list of the Federal Specifications and the separate specifications can be purchased from the Superintendent of Documents, Washington, D. C.

Review Of The Paper Industry Literature

Abstracts Compiled By the Abstracts and Bibliography Committee of the Technical Association of the Pulp and Paper Industry, A. Papineau-Couture, John F. Ohlson, C. E. Peterson and Clarence J. West, Chairman.

Copies of United States Patents can be obtained from the United States Patent Office, Washington, D. C., for 10 cents each. Send currency, not stamps.

Sulphite Process

High Yield Sulphite for News Print. H. J. Rowley. Pulp Paper Mag. Can. 38: 92-96 (1937).—A description of the process by means of which Anglo-Canadian Pulp and Paper Mills, Quebec, are obtaining regularly 55 per cent yields on the dry basis. Cooking is carried out at a low maximum temperature (130° to 135° C.); hot-acid system and precirculation are used; blow-pit stock is uniformly thickened to 3.5 per cent consistency on an inclined wire thickener and goes to a large storage chest, when it is put through Sutherlaand refiners and then through the customary riffiing, screening and thickening system. The strength has been increased from 0.90 to 1.25; color is improved and dirt count is low.—A.P.-C.

Results of Chip Packing and Indirect Cooking in Sulphite Mill Operation. J. Ellis Taylor. Pulp Paper Mag. Can. 38: 97-102 (1937).—A comparison and analysis of mill records at the Cornwall plant of Howard Smith Paper Mills, when operating with and without chip packing and with direct and indirect cooking, revealed a considerable steam saving which was apportioned as follows: chip packing 2,000 lb., indirect cooking 700 lb., use of individual steam flow meters on each digester 1300 lb. per ton of pulp. Considerable improvement in dirt count, color, Mullen test, and loss of strength in bleaching was attributed to indirect cooking, besides general improvement in pulp quality which was not expressed numerically.—A.P.-C.

The Pulping of Hardwoods by the Sulphite Process. I. A Survey of the Literature. G. J. C. Potter and F. H. Yorston. Pulp Paper Mag. Can. 38: 103-108 (1937).—A review with bibliography of 28 references.—A.P.-C.

The Pulping of Hardwood by the Sulphite Process. II. Softness and Opacity in Hardwood Sulphite Pulps. H. Green, C. R. Mitchell and F. H. Yorston. Pulp Paper Mag. Can. 38: 108-115 (1937).—Birch and aspen appear to be no less easily penetrated than spruce during sulphite pulping; they are delignified at the same rate as spruce, but since they contain less lignin, do not require as severe cooking to give pulp of any particular chlorine number. Easy bleaching pulps made by indirect cooking from birch and aspen were hard and transparent; investigation of possible methods of increasing the bulk and opacity of the pulps indicated that changes in the methods of cooking combined, possibly, with alkaline bleaching, will give opaque and bulky sulphite pulps.—A.P.-C.

Production of Very Easy-Bleaching Pulp. F. C. Palazzo, C. Bouvier, G. Fouché and E. Séguin. Belg. pat. 416,986 (Sept. 30, 1936).—The material is treated for 8 to 18 hrs. at 105° to 106°C. with a liquor containing about 6 per cent of free sulphur dioxide and sodium bisulphite corresponding to 0.05 per cent to 0.15 per cent of sodium oxide.—A.P.-C.

Sulphite Waste Liquors

Pressure Heating of the Waste Liquor From Cooking Wood by the Sodium Bisulfite Process. Hilding Bergstroem, K. N. Cederquist, and K. G. Trobeck. Svensk Pappers-Tidn. 40, No. 3: 54-57 (Feb. 15, 1937).—"By heating waste liquor from sodium bisulphite cooks to 350° under pressure, about 37 per cent of the total amount of sulphur in the waste liquor is converted to gaseous products, principally hydrogen sulphur. By heating to 300 and 350°, the corresponding figures are 30 per cent and 33 per cent, respectively. The sulphonic acids in the waste liquor are partly reduced to hydrogen sulfide. A large quantity of the organic matter is obtained as carbonaceous precipitate. The residual liquor still contains organic matter. Sulphate is formed in the presence of air."—C.J.W.

Manufacture of Vanillin From Sulphite Waste Liquor. Harold Hibbert and George H. Tomlinson, Jr. U. S. pat. 2,069,185 (Jan. 26, 1937).—Concentrated sulphite waste liquor is heated with sodium hydroxide at 125° to 160°C. under superatmospheric pressure. The vanillin thus formed is liberated by treatment with excess carbon dioxide, is isolated by extraction with benzene or ethylene chloride, and is purified by known methods (steam distillation, crystallization, sublimation, etc.).—A.P.-C.

Manufacture of Sole Leather. O. Rohm. Belg. pat. 417,457 (Oct. 31, 1936).—The leather is tanned with sulphite waste liquor extract with addition of silicic acid solution. The material can be subsequently impregnated with hard fat.—A.P.-C.

Miscellaneous Digesting Processes

Process for Improving the Color of Wood Pulp. Hugh B. Glass. U. S. pat. 2,070,893 (Feb. 16, 1937).—Kraft pulp is treated successively with: (1) a solution containing hypochlorous acid in which free hydrochloric acid has been neutralized; (2) an alkaline solution containing no bleaching agent; (3) a solution similar to (1).—A.P.-C.

Manufacture of Cellulose From Lignocellulosic Products. Henry Dreyfus. U. S. pat. 2,070,585 (Feb. 16, 1937).—Finely divided wood (chips or mechanical pulp) are treated under pressure at a temperature above the boiling-point, with organic solvents containing a carbonyl group and (or) an ether group, or with a mixture of two or more organic liquids of different polarities, the various solvents being used either alone or preferably in admixture with water.—A.P.-C.

Process of Manufacture of Pulp. Joaquin Julio de la Roza, Sr., assignor to de la Roza Corp. U. S. pat. 2,067,480 (Jan. 12, 1937).—Before cooking, chips are brought to a uniform moisture content by rapid single—or double—stage impregnation under

pressure. The impregnation may be carried out with water, alkaline or acid solutions.—A.P.-C.

Bagasse. X. Phenol Derivatives Isolated From the Waste Acid of the Nitric Acid Pulping Process. Y. Hachihama and M. Onishi. J. Soc. Chem. Ind. Japan 39: 362-363B (1936).—The waste nitric acid from rice and wheat straw, bamboo, and wood pulp contains 3-nitro- and 3.5-dinitro- 4 hydroxybenzaldehyde, and 3-nitro-4-hydroxybenzoic acid, probably formed from lignin.—A.P.-C.

Beating and Refining

Manufacture of Paper and the Theory of Beating. *R. Kerslake.* J. Proc. Austral. Chem. Inst. 3: 344-347 (1936).—A description of paper making processes from the half-stuff stage onwards, with special reference to the theories of beating and sizing and to water supply.—A.P.-C.

Design and Refining Action of Discs. D. Manson Sutherland, Jr. Paper Trade J. 104, No. 9: 36-39 (March 4, 1937).—The principles of refining discs in the light of the old and modern art are examined. The design of discs which can operate as closely as 0.0015 of an inch and still pass large quantities of pulp suspension is clearly shown. Further light is given on the effect of varying gaps, pressures used on the discs, effects of tangential bars and grooves; and attention is directed to refining sulphate pulp or brown stock at high temperatures.—A.P.-C.

Suggested Evaluation Procedure for Comparing Hydrators and Refiners. G. N. Collins. Paper Trade J. 104, No. 9: 45-46 (March 4, 1937).—A partial list is given of machines at present available for the preparation of stock, and a questionnaire is presented which, if answered in full, would permit a direct comparison of one machine with another.—A.P.-C.

A Summary of Fundamental Formulae for Impact and Contact Inches as Presented By Different Authors. Franklin M. Dietz. Paper Trade J. 104, No. 8: 116-120 (Fed. 25, 1937).—A review and discussion, with a plea for the standardization of the formula presented by Bidwell and Sutherland (Paper Trade J. 102, No. 14: 34-35 (April 9, 1936).—A.P.-C.

Beater. Frank Lord and Arnold C. Wilby. Fr. pat. 804,324.—The pulp is ground by shearing between stationary blades and blades which are secured to the underside of rotating discs; a number of pairs may be superposed. The general flow is upwards, but shearing takes place only while the pulp is flowing outwardly from the axis. Baffles are provided to ensure the return idle flow inwards without lodgment of pulp in undesirable places.—A.P.-C.

Some Notes on the Running of Beaters. Arthur B. Green. Paper Industry 18: 930-936 (Feb., 1937).—A number of beating curves are presented and discussed. It is concluded that if stock preparation is to come under control it is the stock that has to be gauged and not the machinery that treats it. As a practical and continuous gauge of the stock, showing how its paper making qualities are developing under beater treatment, and so providing a guide for their control, fluidity answers better than roll pressure or roll position. Fluidity measured continuously provides a gauge of stock that is mechanically simple and easily understood.—A.P.-C.

The Removal of Dirt From Paper Making Stock. Horace Freeman and C. H. Skelton. Pulp Paper Mag. Can. 38: 170-171, 188 (1937).—The limitations of rifflers, screens and rotating centrifugal devices for the removal of dirt from stock are discussed. The "Vortrap" consists essentially of a long, narrow, vertical cylinder with a cone bottom provided with an outlet and a valve opening into a separate reservoir for the dirt; the stock is forced continuously tangentially into the top of the cylinder and an outlet for the stock is provided at the top center. The device has the very great advantage of possessing no moving parts.—A.P.-C.

Metal Plate Disc Refining of Groundwood Rejects. A. S. Cosler. Pulp Paper Mag. Can. 38: 133-136 (1937).—A discussion of the action and performance of the double- and single-disc metal plate refiner applied to the treatment of groundwood screen rejects.—A.P.-C.

Beater. Frank Lord and Arnold C. Wilby. Brit. pat. 453,451 (Sept. 11, 1936).—Paper-pulp circulation in a beating engine is aided by a conical plug in an eccentric casing, the inlet to which is offset to the beater axis, and by an impeller.—A.P.-C.

Beating Device for Wood Pulp and Similar Materials. Max Menzel, Leipzig. Ger. pat. 638,239 (Sept. 17, 1935). Addition to Ger. pat. 627,185.—Arrangement of the air canals.—J.F.O.

Bleaching

Chlorine Bleaching. I. Egon Elöd and Franz Vogel. Melliand Textilber. 18, No. 1: 64-68 (Jan., 1937).—The effect of the *p*H on cotton in hypochlorite bleaching has been investigated. It was found that the maximum decomposition of the cellulose occurs in bleach with a *p*H of 7—8. The detailed results are given in a number of tables and cures.—C.J.W.

Russian Operating Experience With Bleaching of Rayon Pulp. Al Krüger. Finnish Paper and Timber J. 19, No. 2: 57:58, 60 (Jan. 31, 1937).—The author reviews an article by I. Nikitin, P. Komarov, and I. A. Nagrodskii, originally published in Russian in Bumazhnaya Prom. 15, no. 4: 33-41 (1936), which discusses laboratory control methods and the bleaching process of viscose pulp in the mill at Sjas. The latter is carried out in two stages, a continuous preliminary bleach in a Thorne tower with following after-bleach in a hollander. Different temperatures, pulp consistencies, and quantities of chlorine with varying percentages in the two stages were tried. The results are tabulated.—C.J.W.

Bleaching of Pulp in the Presence of Catalysts. P. S. Larin and M. V. Nagorskii. Bumazhnaya Prom. 15, No. 9: 59-63 (Sept., 1936); Zellstoff u. Papier 17, No. 2: 38-39 (Feb., 1937); C. A. 31: 2422.—Laboratory experiments in bleaching of pulp with calcium hypochlorite, with and without the presence of pyrites cinders and pyrolusite as catalysts, are described. With pyrolusite the bleaching time was reduced about 50 per cent. It retained its activity an indefinitely long time. Pyrites cinders were less effective and lost their activity after several applications. The use of catalysts affected the chemical constants of bleached pulp, increasing the copper number and decreasing the content of alpha-cellulose. The consumption of chlorine in the presence of catalysts in the first stage is greater, but in general is smaller than that by the usual process of bleaching. Purifying pyrolusite by washing with water reduced its activity.—C.J.W.

Some Developments in Improving the Quality

of Chemical Wood Pulps. John D. Rue. Paper Trade J. 104, No. 7: 34-37 (Feb. 18, 1937).—A review of improvements affected during the past few years in the quality of unbleached and bleached sulphite, unbleached and bleached kraft, soda pulp and semi-chemical pulps, and also in bleaching processes.—A.P.-C.

Bleaching Kraft. John D. Rue. Paper Trade J. 104, No. 7: 31-33 (Feb. 18, 1937).—A review and discussion of the phases of the subject with which the author has had personal plant or laboratory experience.—A.P.-C.

Purification of Pulp. Canadian International Paper Co. Fr. pat. 806,539.—Alkaline-earth metal salts are substantially completely removed from pulp by treating simultaneously with chlorine gas or chlorine water and a soluble chloride, at a fairly high consistency and at a temperature not over 40°C. The treatment may be carried out either in conjunction with or independently of bleaching.—A.P.-C.

Bleaching Pulp. Wilhelm Hirchkind, assignor to Great Western Electro-Chemical Co. U. S. pats. 2,071,304 to 2,071,309 (Feb. 16, 1937).—*No. 2,071,304*—Groundwood is bleached with a hydro sulphite at a pH of 5 to 6 in presence f an inorganic buffering salt such as sodium or calcium sulphite or bisulphite, calcium phosphate or borate. *No. 2,071,305*—Groundwood is bleached at 100° to 212°F. by treatment with hydrosulphites in organic combination, such as sodium or zinc hydrosulphite formaldehyde. *No. 2,071,306*—Groundwood is bleached at 100° to 212°F. with an organic sulphoxylate. *No. 2,071,307*—Groundwood is bleached at 100° to 212°F. with a hydrosulphite at a pH of 4.5 to 6.5, which is maintained by the addition of a suitable inorganic buffer. *No. 2,071,308*—Chemical pulp is bleached with an organic sulphoxylate at 100° to 212°F. and at a pH of 4 to 7. *No. 2,071,309*—Chemical pulp is bleached at 100° to 212°F. and at a pH of 4 to 7, with a hydrosulphite in organic combination with an aldehyde or a ketone.—A.P.-C.

Kalamazoo Valley TAPPI Discusses Water

The annual fall meeting of the Kalamazoo Valley Section of the Technical Association of the Pulp and Paper Industry was held at the University of Michigan, Ann Arbor, Mich., November 19-20. Twenty-eighth members representing nearly every mill in the section were present.

The general subject of the meeting was "Water." Various phases of its treatment and use were discussed in an enlightening manner by the speakers.

The program started Friday noon with a luncheon. Two evening papers were given during the afternoon, the first being a discussion of "The Hydraulics of Handling and Measurement of Water Flows," by R. A. Dodge, Associate Professor of Engineering Mechanics. He gave some detail with common erroneous assumptions often made in measurements of flow by various types of wiers.

D. W. McCready then gave a short talk on various types of corrosion and amplified at some length on their causes and effects.

Following the afternoon session the members were invited to enjoy the various recreational facilities available until the evening banquet.

The speaker of the evening was R. L. McNamee, consulting engineering and associate water consultant of the National Resources Committee. He gave an interesting talk on "The Disposal of Paper Mill Fluid Waste." The subject was treated from the practical angle, both economic and chemical phases being considered and discussed.

Mr. McNamee touched briefly on the present state of legislation regarding stream pollution and set forth the opinion that definite steps will continue to be made toward cleaning up waterways and that pressure will be brought to bear on municipalities and industrial plants in so doing.

On Saturday morning the University of Michigan Paper Laboratory, under the direction of Prof. McCready was inspected. This was the final item on the program and Prof. Dodge received the group in the Hydraulics Laboratory where he demonstrated the various points which he had discussed the previous afternoon.

The meeting closed with those present attending the University of Michigan-Ohio State football game.

Those present were: P. W. Bartholomew, Hercules Powder Co., Kalamazoo, Mich.; John E. Bauman, Kalamazoo Vetgetable Parchment Company, Parchment, Mich.; R. G. Bohn, Michigan Carton Company, Battle Creek, Mich.; George Carleton, Detroit Sulphite Pulp and Paper Company., Detroit, Mich.; L. Charles Cook, National Casein Company, Chicago, Ill.; Paul de Guehery, Michigan Paper Company, Kalamazoo, Mich.; R. T. Elias, Detroit Sulphite Pulp and Paper Company, Detroit, Mich. W. F. Hathaway, Kalamazoo Vegetable Parchment Company, Parchment, Mich., D. W. Hayes, Ann Arbor, Mich.; V. Heinmuller, American Cyanamid and Chemical Company, Kalamazoo, Mich.; Marvin C. Jones, Michigan Carton Company, Battle Creek, Mich., Glenn F. Jouse, Peninsular Paper Company, Ypsilanti, Mich.; W. A. Kirkpatrick, Allied Paper Mills, Kalamazoo, Mich.; M. F. Knack, River Raisin Paper Company, Monroe, Mich.; William Kottman, Kalamazoo Vegetable Parchment Company, Parchment, Mich.; Joseph Kuvsman, Detroit Sulphite Pulp and Paper Company, Detroit, Mich.; L. H. La Liberti, Kalamazoo Vegetable Parchment Company, Parchment, Mich.; M. J. Loveland, Hercules Powder Company, Kalamazoo, Mich.; James R. Lyon, American Cyanimid and Chemical Company, Kalamazoo, Mich.; D. W. McCready, University of Michigan, Department of Chemical Engineering, Ann Arbor, Mich.; Elbert G. Milham, Watervliet Paper Company, Watervliet, Mich.; P. F. Neumann, Hercules Powder Company, Kalamazoo, Mich.; Howard F. Roderick, Michigan Alkali Company, Wyandotte, Mich.; C. C. Schneider, Hawthorne Paper Company, Kalamazoo, Mich.; Fred Schorken, Filer Fibre Company, Manistee, Mich.; Hugh C. Smith, Kalamazoo Vegetable Parchment Company, Parchment, Mich.; Merle R. Wilkins, Bryant Paper Company, Kalamazoo, Mich.; John C. Wood, Kalamazoo Vegetable Parchment Company, Parchment, Mich.

Imports of Paper and Paper Stock

Giving Manifests of New York, Boston, Philadelphia and Other Ports, of Newsprint, Wrapping, Writing, Coated, Blotting, Tissue, Strawboard, Wallboard, Cigarette Papers, Sulphite, Kraft and Ground Wood Pulp.

NEW YORK IMPORTS
WEEK ENDING NOVEMBER 27, 1937
SUMMARY

Cigarette Paper .....1,223 cs.
Wall Paper .....28 pkgs., 35 bls., 47 cs.
Paper Hangings .....12 bls., 1 cs.
Newsprint .....5,655 rolls
Printing Paper .....22 rolls, 40 cs.
Wrapping Paper .....74 cs.
Drawing Paper .....8 cs.
Filter Paper .....15 cs.
Filter Compound .....100 bls.
Filter Mass .....2 cs.
Surface Coated Paper .....101 crates, 58 cs.
Surface Baryta Coated Paper .....30 cs.
Metal Covered Paper .....14 cs.
Basic Paper .....25 cs.
Decalcomania Paper .....5 drums, 8 cs.
Decalcomanias .....14 cs.
Transfer Paper .....43 cs.
Tissue Paper .....16 cs.
Logarithmic Paper .....1 cs.
Marble Paper .....1 cs.
Fancy Paper .....1 cs.
Buff Paper .....13 bls.
Pattern Paper .....1 cs.
Paper Board .....5 cs.
Paper tubes .....175 cs.
Miscellaneous Paper .....82 cs.

CIGARETTE PAPER

Champagne Paper Corp., *Manhattan*, Havre, 700 cs.
De Mauduit Paper Corp., *Manhattan*, Havre, 175 cs.
R. J. Reynolds Tobacco Co., *Manhattan*, Havre, 266 cs.
———, *Manhattan*, Havre, 82 cs.

WALLPAPER

F. J. Emmerich Co., *Samaria*, Liverpool, 4 cs. 8 bls.
F. J. Emmerich Co., *Berengaria*, Southampton, 1 cs.
———, *Europa*, Bremen, 26 cs.
F. Blanc, & Co., *Manhattan*, Havre, 14 cs.
American Express Co., *Manhattan*, Havre, 26 bls.
F. J. Emmerich Co., *New York*, Hamburg, 1 ble., 2 cs.
Titan Shipping Co., *New York*, Hamburg, 28 pkgs.

PAPER HANGINGS

W. H. S. Lloyd & Co., *American Banker*, London, 12 bls., 1 cs.

NEWSPRINT

Jay Madden Corp., *Minnequa*, Wiborg, 370 rolls.
Jay Madden Corp., *Wasgenwald*, Hamburg, 739 rolls.
International Paper Co., *Point Bonita*, Dalhousie, 3465 rolls.
International Paper Sales Co., *Point Bonita*, Dalhousie, 775 rolls.
Perkins Goodwin & Co., *New York*, Hamburg, 306 rolls.

PRINTING PAPER

Major F'd'g. Co., *American Banker*, London, 1 cs.
Keuffel & Esser Co., *Manhattan*, Hamburg, 22 rolls, 30 cs.
———, *New York*, Hamburg, 9 cs.

WRAPPING PAPER

Japan Paper Co., *Pennland*, Antwerp, 2 cs.
Titan Shipping Co., *Berengaria*, Southampton, 2 cs.
Phoenix Shipping Co., *New York*, Hamburg, 2 cs.
———, *New York*, Hamburg, 25 cs.
Steiner Paper Corp., *New York*, Hamburg, 43 cs.

DRAWING PAPER

Japan Paper Co., *American Banker*, London, 1 cs.
Artists Brush & Color Corp., *American Banker*, London, 1 cs.
Devoe & Reynolds Tobacco Co., *American Banker*, London, 6 cs.

FILTER PAPER

C. Schleicher & Schull Co. Inc., *New York*, Hamburg, 15 cs.

FILTER COMPOUND

———, *Manhattan*, Hamburg, 100 bls.

FILTER MASS

A. Giese & Son, *New York*, Hamburg, 2 cs.

SURFACE COATED PAPER

Gevaert Co. of America, *Black Gull*, Antwerp, 14 cs.
Gevaert Co. of America, *Pennland*, Antwerp, 44 cs. (unfinished photo-paper)
Globe Shipping Co., *New York*, Hamburg, 101 crates.

SURFACE BARYTA COATED PAPER

L. A. Consmiller, *Europa*, Bremen, 30 cs.

METAL COVERED PAPER

K. Pauli Co., *New York*, Hamburg, 14 cs.

BASIC PAPER

Globe Shipping Co., *New York*, Hamburg, 25 cs.

DECALCOMANIA PAPER

B. F. Drakenfeld & Co., *Samaria*, Liverpool, 7 cs., 5 drums, (duplex)
B. F. Drakenfeld & Co., *Samaria*, Liverpool, 1 cs. (simplex)

DECALCOMANIAS

Sellers Transportation Co., *Europa*, Bremen, 14 cs.

TRANSFER PAPER

J. H. & G. B. Siebold, Inc., *New York*, Hamburg, 43 cs.

TISSUE PAPER

B. F. Drakenfeld & Co., *Samaria*, Liverpool, 1 cs.
———, *Hokkai Maru*, Kobe, 6 cs.
Whitfield Paper Works, *Hokkai Maru*, Kobe, 9 cs.

LOGARITHMIC PAPER

Carter Medicine Co., *American Banker*, London, 1 cs.

MARBLE PAPER

J. MacDonald, *American Banker*, London, 1 cs.

FANCY PAPER

———, *American Banker*, London, 1 cs.

BUFF PAPER

Nestles Milk Products, Inc., *American Banker*, London, 13 bls.

PATTERN PAPER

Japan Paper Co., *American Banker*, London, 1 cs.

PAPER BOARD

J. P. Heffernan Paper Co., *E. Francqui*, Antwerp, 5 cs.

PAPER TUBES

———, *New York*, Hamburg, 175 cs.

MISCELLANEOUS PAPER

International F'd'g. Co., *E. Francqui*, Antwerp, 4 cs.
Japan Paper Co., *Narutu Maru*, Kobe, 15 cs.
T. H. Hindle & Co., *Vito*, Yokohama, 1 cs.
Clay Adams Co., *Vito*, Yokohama, 4 cs.
Keuffel & Esser Co., *Manhattan*, Hamburg, 58 cs.

RAGS, BAGGINGS, ETC.

Harris Goldman Co., *Black Gull*, Rotterdam, 269 bls. bagging.
———, *Pennland*, Antwerp, 351 bls. flax waste.
Chase National Bank, *Pennland*, Antwerp, 118 bls. bagging.
J. Cohen & Son Co., *Samaria*, Liverpool, 16 bls. rags.
Chase National Bank, *Turksib*, Leningrad, 2980 bls. rags.
W. Steck & Co., *London Exchange*, Rotterdam, 104 bls. bagging.
Castle & Overton, Inc., *Tampa*, Port Said, 92 bls, rags, 51 bls. bagging.
———, *Tampa*, Port Said, 77 bls. rags.
Hicks Costarino Co., *Exochorda*, Alexandria, 188 bls. bagging.
R. J. Ross & Co., *Exochorda*, Alexandria, 132 bls. rags.
W. Steck & Co., *Exochorda*, Alexandria, 191 bls. hessians.
W. J. Green, *Exochorda*, Alexandria, 40 bls., rags.
E. J. Keller Co. Inc., *Exchorda*, ———, 63 bls. bagging, 99 bls. paper stock.
———, *City of Bath*, Bombay, 112 bls. rags.
E. J. Keller Co., Inc., *City of Bath* ———, 67 bls., rags.
Darmstadt Scott & Courtney, *Vito*, Kobe, 43 bls. rags, 46 bls. art. silk waste.

OLD ROPE

Banco Com'l. Italiane Trust Co., *American Banker,* London, 132 coils.
W. Steck & Co., *Lo. don Exchange,* Rotterdam, 47 coils.
W. Steck & Co., *Exochorda,* Marseilles, 58 coils.
Loumar Textile By-Products Inc., *Vito,* Yokohama, 81 coils.

WOOD PULP

Price & Pierce, Ltd., *Gypsum Prince,* Windsor, N. S., 498 bls., wood pulp.
Lagerloef Trading Co., *Minnequa,* Helsingfors, 774 bls. sulphite, 131 tons.
National City Bank, *Minnequa,* Hernosand, 300 bls. sulphite, 50 tons.
E. M. Sergeant Pulp & Chemical Co., *Minnequa,* Hernosand, 1350 bls. sulphite, 200 tons.
Bank of N. Y. Trust Co., *Minnequa,* Hernosand, 900 bls., sulphite, 150 tons.
Price & Pierce, Ltd., *Minnequa,* Hernosand, 1200 bls., unbleached sulphite, 200 tons.
Price & Pierce, Ltd., *Minnequa,* Hernosand, 150 bls., unbleached sulphate, 25 tons.
——, *Minnequa,* Hernosand, 300 bls., sulphite, 50 tons.
Chase National Bank, *Wasgenwald,* Hamburg, 1000 bls., sulphite, 200 tons.
Castle & Overton, Inc., *Wasgenwald,* Hamburg, 1409 bls., wood pulp, 281 tons.
——, *Dominion Halsyd,* St. George, N. B., 290 tons wood pulp.
Absorbo Beer Pad Co., *Vulcania,* Trieste, 400 bls., wood pulp.
Bankers Trust Co., *New York,* Hamburg, 999 bls., sulphite, 200 tons.
Bank of N. Y. Trust Co., *New York,* Hamburg, 3045 bls., wood pulp, 609 tons.

WOOD PULP BOARDS

Flexideal Dry Mat Co., *Manhattan,* Hamburg, 25 cases.
W. Bersch, *New York,* Hamburg, 175 bls.

WOOD PULP SHEETS

C. Bishop & Co., *Manhattan,* Hamburg, 29 bls.
Flexideal Dry Mat Co., *Manhattan,* Hamburg, 21 bls.

ALBANY IMPORTS

WEEK ENDING NOVEMBER 27, 1937

Price & Pierce, Ltd., *Minnequa,* Stockholm, 4200 bls., unbleached sulphite, 710 tons.
Gottesman & Co., Inc., *Minnequa,* Stockholm, 1200 bls., sulphite, 200 tons.
Lagerloef Trading Co., *Minnequa,* Helsingfors, 1152 bls., sulphite, 190 tons.
Lagerloef Trading Co., *Minnequa,* Helsingfors, 665 bls., sulphate, 110 tons.
Castle & Overton, Inc., *Minnequa,* Wiborg, 891 bls., wood pulp, 175 tons.
Lagerloef Trading Co., *Minnequa,* Wiborg, 14471 bls., sulphite, 2758 tons.
Bank of N. Y. Trust Co., *Minnequa,* Hernosand, 6462 bls., kraft pulp, 1077 tons.
Price & Pierce, Ltd., *Minnequa,* Hernosand, 600 bls., mechanical pulp, 100 tons.
Price & Pierce, Ltd., *Minnequa,* Hernosand, 1200 bls., sulphite, 200 tons.
Price & Pierce, Ltd., *Tyrifjord,* ——, 900 bls., unbleached sulphite.
Price & Pierce, Ltd., *Tyrifjord,* ——, 3250 bls., bleached sulphite.
Pagel Horton & Co., Inc., *Korsholm,* Sweden, 3628 bls., wood pulp.

PORTLAND IMPORTS

WEEK ENDING NOVEMBER 27, 1937

Gottesman & Co., Inc., *Wanja,* Sweden, 2100 bls. sulphite.

BOSTON IMPORTS

WEEK ENDING NOVEMBER 27, 1937

E. J. Keller Co. Inc., *Exochorda,* ——, 99 bls. rags.
W. J. Green, *Exochorda,* Alexandria, 268 bls. rags.
Atkinson Haserick & Co., *Exochorda,* Genoa, 28 cs. paper.
Price & Pierce, Ltd., *Toledo,* ——, 500 bls. bleached sulphite.
Price & Pierce, Ltd., *Toledo,* ——, 300 bls. unbleached sulphite.

PHILADELPHIA IMPORTS

WEEK ENDING NOVEMBER 27, 1937

Gottesman & Co., Inc., *Kexholm,* Sweden, 1197 bls. sulphate.
E. J. Keller Co. Inc., *Eidsvold,* ——, 374 bls. paper stock.

WILMINGTON IMPORTS

WEEK ENDING NOVEMBER 27, 1937

Price & Pierce, Ltd., Bockenheim, ——, 6888 bls. unbleached sulphite.

BALTIMORE IMPORTS

WEEK ENDING NOVEMBER 27, 1937

Congoleum Nairn Co., *Black Gull,* Antwerp, 251 bls. rags.
Congoleum Nairn Co., *Black Gull,* Rotterdam, 626 bls. rags.
——, *Black Gull,* Rotterdam, 500 bls. wood pulp, 98 tons.
M. Sone, *London Exchange,* Rotterdam, 2580 bls., wood pulp.
Price & Pierce, Ltd., *Etna,* ——, 3000 bls., unbleached mechanical pulp.
Price & Pierce, Ltd., *Skramstad,* ——, 250 bls. unbleached mechanical pulp.
Price & Pierce, Ltd., *Skramstad,* ——, 2778 bls. unbleached sulphate.
Price & Pierce, Ltd., *Skramstad,* ——, 3468 bls., unbleached sulphite.
Price & Pierce, Ltd., *Tampa,* ——, 1050 bls., unbleached sulphite.
M. Sone, *City of Hamburg,* Hamburg, 498 bls. wood pulp.
Pagel Horton & Co. Inc., *Tampa,* Sweden, 1500 bls., wood pulp.
Gottesman & Co., Inc., *Etna,* Sweden, 3525 bls. sulphate.
Gottesman & Co. Inc., *Kexholm,* Sweden, 1800 bls. sulphate.
Gottesman & Co. Inc., *Tampa,* Sweden, 5600 bls. sulphite.
Gottesman & Co. Inc., *Toledo,* Sweden, 1250 bls. sulphite.

NEWPORT NEWS IMPORTS

WEEK ENDING NOVEMBER 27, 1937

Price & Pierce, Ltd., *Skramstad,* ——, 5410 bls. unbleached sulphite.

D. A. Nesbitt Injured in Auto Accident

[FROM OUR REGULAR CORRESPONDENT]

DAYTON, Ohio, November 29, 1937—Don A. Nesbitt, 128 East Dixon avenue, Dayton, Ohio, vice president of the Cincinnati Cordage and Paper Company, was seriously injured, and his companion Willard George was fatally injured in a train-automobile accident near Bachman, Ohio.

Mr. Nesbitt suffered from bruises and shock and possible internal injuries. Young Nesbitt, a 30 year old executive of the Cincinnati Cordage and Paper Company, was en route to Culver, Ind., to transact business. Due to the snow Mr. Nesbitt was unable to see the train and drove into the third or fourth freight car. Mr. George was returned to a Dayton, Ohio, funeral home and Mr. Nesbitt was committed to Good Samaritan Hospital in Dayton, Ohio.

To Represent Paper Plate Co.

[FROM OUR REGULAR CORRESPONDENT]

BOSTON, Mass., November 29, 1937—Smith, Dee & Lane, 610 Atlantic avenue, have recently been appointed New England sales representatives of the Paper Plate and Tray Company, Chicago, Ill. This concern manufactures moulded pie plates, cake circles and food trays, all called De Luxe products. These products have been accepted by the trade as being as good as the finest on the market. The pie plates are moving especially well.

Miss Myra Dee, the head of this selling organization, has been unable to come to the office for the last few days on account of illness, but is expected to return shortly.

WOOD PULP
AGENTS

PRICE & PIERCE, Ltd.,

60 EAST 42nd ST.
NEW YORK

ZOPAQUE

Pure Titanium Dioxide

White!

Yes . . ZOPAQUE is PURE titanium dioxide . . . the most OUTSTANDING of all white fillers!

ZOPAQUE is chemically pure and stable. CHALLENGES comparison for *whiteness* and *opacity*.

Try It!

The Chemical & Pigment Company
Baltimore, Md. Collinsville, Ill.
Lithophone, Cadmium Red, Cadmolith, Titanolith, Zopaque (TiO_2)
Marshall Dill, San Francisco, California

Mundt

Perforated Screens
For Pulp and Paper Mills

Steel, Copper, Brass
Bronze, Monel Metal
and Other Alloys
Punched for Centrifugal
and Rotary Screens,
Pulp Washers, Drainer
Bottoms, Filter Plates, etc.

Charles Mundt & Sons
63 Fairmount Ave. Jersey City, N. J.

EXCELSIOR FELTS

a product of

THE
KNOX WOOLEN CO.
CAMDEN MAINE

DISTRIBUTED
SINCE 1864 BY

BULKLEY, DUNTON & CO.
295 MADISON AVE. NEW YORK, N. Y.
CAledonia 5-5260 to 69

New York Market Review

Office of the PAPER TRADE JOURNAL.
Wednesday, December 1, 1937.

The demand for nearly all grades of paper is reported to be slightly less for the current week. In general, prices are firm and though consumer demand has continued to decline during the business recession and still continues, the paper markets have remained steady during the downward trend in demand. The sales volume for all grades of paper, except newsprint, is now at so low a point that one of the largest mills reports its current production as slightly below 60 per cent of capacity. This producer is well entrenched in the industry with a wide market for the distribution of its varied lines. Other mills with more limited outlets for their products report production at a lower level.

While stocks in the hands of jobbers and consumers are conceded to be low, business continues to be transacted at a relatively small volume on a hand-to-mouth basis. Prices of all grades of paper remain firm with few reports of any reductions from the contract market and spot market prices which have prevailed for some time.

The newsprint market is normally active with the usual volume of contract shipments going forward.

The writing paper market is quiet and the same condition prevails in tissue papers and throughout the wholesale markets. The demand for book and lithographic papers is about on the level of the preceding week.

The demand for kraft paper is reported light and sales volume is little changed from last week, though an improved consumer demand is expected to set in about the middle of the current month.

The boxboard market is quiet. No noteworthy changes in demand or prices are reported for the week.

Chemical Pulp

The chemical pulp market reports demand as very light. Prices are unchanged for this week, with the trend in demand still downward. In the opinion of one authority in the trade, prices are likely to decline if American, Canadian and European pulp mills do not curtail their current production.

Mechanical Pulp

The mechanical pulp market reports demand as very light. Prices hold firm and are unchanged for the week.

Old Rope and Bagging

The demand for old rope is reported to be very light. Prices remain firm and unchanged for the current week. The bagging market continues quiet and prices remain unchanged from last week.

Rags

The domestic rag market is very quiet. Prices are firm and remain unchanged with the exception of O. D. khaki cuttings which are slightly lower for the week. The foreign rag market continues inactive. Prices are nominal.

Waste Paper

The waste paper market is reported very quiet. Prices are firm and remain unchanged from the quotations of last week, with the exception of envelope cuttings which are slightly higher.

Twines

The twine market continues very quiet. Prices are about on the level of last week and continue to hold firm, with few reports of any quotations under prevailing wholesale prices.

I. P. Will Not Increase Price

R. J. Cullen, president of the International Paper Company, Monday stated that the company was announcing to its customers that it did not propose to increase its price for newsprint for the last half of 1938. The $50. base price for delivery at Chicago, New York, and other Atlantic and Gulf ports, already announced for the first six months of 1938 is accordingly extended to include the entire year.

"This action," Mr. Cullen stated, "on our part was taken in spite of known increased costs for the last half of 1938. In making this announcement at this time we felt that such action on our part would be helpful to our customers in formulating their plans for the full year."

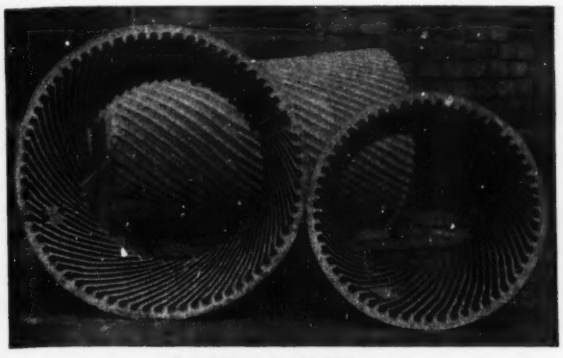
Multiple Electrical Magnification

A circular of the "Doo-more-scope," which is a multiple-power electrical magnifier, has been issued by Lincoln Optics, Monadnock Block, Chicago. As stated by the company the device has many uses for the close, speedy and accurate observation of any measuring instrument, picture, film, slide-rule, design and for the clear view of minute detail in great variety.

"Every Guarded Footstep"

A folder issued by the American Pressed Steel Company, Commercial Trust Building, Philadelphia, Pa., describes the several patterns of the company's "Neverslip rolled steel floor plate," or safety tread.

REG. U.S. PAT. OFFICE "POSITIVE" TRADE MARK



Spiral Type Jordan Fillings

THE BAHR BROS. MFG. CO.

OUR SPECIALTY IS JORDAN FILLINGS

SPIRAL TYPE JORDAN FILLINGS
TWIN SPIRAL BAR JORDAN FILLINGS
THE OLD TYPE BAR JORDAN FILLINGS

Jordan fillings for every kind of stock, and for every known trade name and size Jordan. The bars, made of our stainless metal, resist the action of chemicals; also plain to meet the requirement in rough stock mills.

Place your refining problem up to us. Our high speed refiners are built for belt or V-belt drive; also for direct connected.

Your inquiries will have our prompt attention.

MARION, INDIANA, U. S. A.

West Virginia Pulp and Paper Company

230 Park Ave. New York
35 East Wacker Drive Chicago
503 Market St., San Francisco, Cal.
Public Ledger Building, Philadelphia, Pa.

Manufacturers of

ENGLISH FINISH SUPERCALENDERED
MACHINE FINISHED BOOK
and LITHOGRAPHIC PAPERS

Offset, Envelope, Bond, Writing, Mimeograph, Ledger, Eggshell, Cover and Music Papers, Index Bristol, Post Card and Label Papers

HIGH GRADE COATED BOOK

. . . .

KRAFT WRAPPING AND KRAFT ENVELOPE.
KRAFT CYLINDER BOARD.
BLEACHED SULPHITE AND SODA PULP.
BLEACHED AND UNBLEACHED KRAFT PULP.

MILLS:

Mechanicsville, New York
Luke, Maryland
Covington, Virginia
Tyrone, Pennsylvania
Williamsburg, Pennsylvania
Cass, West Virginia
Charleston, South Carolina.

HIGHEST GRADE CLAYS

EASTON PAPER MAKERS IMPORTING CO. INC. EASTON, PENNSYLVANIA, U.S.A.

COATING FILLING

POWDERED

Let us take care of your REJECTIONS, over-runs or seconds.

We have branches in fourteen different cities and can sell your rejections for you at a minimum expense to you; wherever they occur.

THE SABIN ROBBINS PAPER COMPANY

STATION A CINCINNATI, OHIO

Miscellaneous Markets

Office of the PAPER TRADE JOURNAL,
Wednesday, December 1, 1937.

BLANC FIXE—The blanc fixe market is steady. Prices are firm and conform to the quotations of the preceding week. The pulp is quoted at from $42.50 to $45 per ton, in bulk; the powder at from 3½ to 3¾ cents per pound, in barrels at works.

BLEACHING POWDER—The demand for bleaching powder is reported steady. Prices are firm and unchanged from the quotations of last week. Bleaching powder is offered at from $2 to $2.25 per 100 pounds, in drums, at works.

CASEIN—The casein market reports demand as fair. Domestic standard ground casein is quoted at from 12½ to 13 cents; domestic finely ground at 14 cents per pound; all in bags, car lot quantities.

CAUSTIC SODA—The demand for caustic soda is reported steady. Prices are firm and unchanged. Solid caustic soda is quoted at from $2.10 to $2.30 per 100 pounds; flake and ground at from $2.50 to $2.70 per 100 pounds, in drums, at works.

CHINA CLAY—The china clay market reports demand about on the level of last week. Prices are firm. Imported clay is quoted at from $14.50 to $25 per ton, ship side. Domestic filler clay is offered at from $6.50 to $12 per ton; coating clay at from $11 to $22 per ton, at mines.

CHLORINE—The chlorine market reports demand as steady. Prices remain firm and unchanged from the quotations of the preceding week. Chlorine is quoted at $2.15 per 100 pounds, in single-unit tank cars, f.o.b., works.

ROSIN—The demand for rosin continues fair. Prices are slightly higher for the current week. Paper making rosin is quoted at $5.90; wood rosin at $6 per 280 pounds, gross weight, in barrels at Savannah. Seventy per cent rosin size is quoted at $3.02 per 100 pounds, in tank cars, f.o.b., shipping point.

SALT CAKE—The salt cake market is reported steady. Very little, if any, domestic salt cake is available. Quotations range from $12 to $13.50 per ton; chrome salt cake from $11 t $12, f.o.b., shipping point. Imported salt cake is offered at from $14.50 to $15 per ton, Gulf or Atlantic Seaboard, on dock.

SODA ASH—The soda ash market is reported steady. Prices remain firm. Quotations on soda ash in car lots, at works, per 100 pounds, are as follows: in bulk, $.90; in bags, $1.05; and in barrels, $1.35.

STARCH—The demand for starch is reported steady. Prices are unchanged for the current week. Globe pearl is quoted at $2.95 per 100 pounds, in bags, and at $3.20 in barrels. Special paper starch is offered at $2.85 per 100 pounds, in bags, and at $3.10 in barrels; all prices in car lots, f.o.b., Chicago.

SULPHATE OF ALUMINA — The sulphate of alumina market is steady. Prices are firm. The commercial grades are quoted at from $1.25 to $1.60; iron free at from $2 to $2.25 per 100 pounds, in barrels, at works.

SULPHUR—The demand for sulphur is steady. Prices are firm and unchanged from the quotations of the preceding week. Annual contracts are quoted at $18 per long ton, f.o.b., cars at mines. Spot and nearby car lots are offered at $21 per ton.

TALC—The demand for talc is about on the level of the preceding week. Prices are firm and unchanged. Domestic talc is quoted at from $15 to $18 per ton, Eastern mines. Imported talc is offered at from $25 to $40 per ton, on dock.

Market Quotations

Paper

Tissues—Per Ream—

White No. 1	1.10	@	—
White No. 1 M. G.	1.07½	@	—
White No. 1½	.77½	@	—
White No. 2	.75	@	—
Anti-Tarnish M. G.	.77½	@	—
Colored	.90	@	—
Kraft	.77½	@	—
Manila	.75	@	—
Unbleached Toilet.	2.90	@	3.30
Bleached Toilet	3.94	@	5.26

Paper Towels—

Unbleached	2.10	@	3.35
Bleached	3.30	@	3.70

Manila—

No. 1 Jute	9.00	@	9.25
No. 2 Jute	7.75	@	8.50
No. 1 Wood	4.00	@	5.25
No. 2 Wood	3.50	@	4.00

Fibre Papers—

No. 1 Fibre	4.25	@	5.50
No. 2 Fibre	4.00	@	4.75

(Delivered New York)

News, per ton—

Roll, contract	42.50	@	—
Sheets	47.50	@	—

Kraft—

No. 1 Northern	5.25	@	5.75
Standard	5.00	@	—
Southern	4.50	@	—
Machine glazed, plain, striped	5.00	@	—

Boards, per ton—

News	37.50	@	40.00
Chip	37.50	@	40.00
Sgl. Mla. Ll. Chip	52.50	@	—
Jute Lined Chip	52.50	@	—
White Pat. Coated	65.00	@	67.50
Kraft Liners	55.00	@	—
Binders Boards	75.00	@	80.00

The following are representative of distributors' resale prices:—

Rag Content Bonds and Ledgers—
White, Assorted Items.
Delivered in Zone 1:

	Bonds	Ledgers
100% Rag Ext. No. 1	$41.40@$48.50	$42.55@$50.00
100% Rag	32.80@ 38.50	33.95@ 39.75
85% Rag	.....	32.20@ 37.75
75% Rag	24.75@ 29.00	25.90@ 30.50
65% Rag	21.65@ 26.25	22.80@ 27.75
50% Rag	18.70@ 22.75	19.90@ 24.25
25% Rag	15.80@ 19.25	16.95@ 20.75

Regular Colors @ $1.50 cwt. extra.
Heavy Colors @ $3.00 cwt. extra

Sulphite Bonds and Ledgers—
White, Assorted Items.
Delivered in Zone 1:

	Bonds	Ledgers
No. 1	$9.35@$11.50	$10.55@$12.75
No. 2	8.50@ 10.25	9.65@ 11.75
No. 4	7.60@ 9.25	8.80@ 10.75

Regular Colors @ $1.50 cwt. extra.
Heavy Colors @ $3.00 cwt. extra.

Free Sheet Book Papers—
White, Cased Paper,
Delivered in Zone 1:

No. 1 Glossy Coated	$12.15@	$14.25
No. 2 Glossy Coated	10.55@	12.25
No. 3 Glossy Coated	9.35@	11.00
No. 4 Glossy Coated	8.80@	10.50
No. 1 Antique (watermarked)	8.80@	10.50
No. 2 Offset	8.05@	9.50
A Grade E. F.	7.90@	9.50
A Grade S. & S. C.	8.15@	9.75
B Grade E. F.	7.30@	8.75
B Grade S. & S. C.	7.55@	9.00
C Grade E. F.	7.00@	8.50
C Grade S. & S. C.	7.25@	8.75
D Grade E. F.	6.75@	8.25
D Grade S. & S. C.	7.00@	8.50

Ivory & India at $.50 cwt. extra.

Mechanical Pulp

(On Dock, Atlantic Ports)

No. 1 Imported—

Moist	35.00	@	36.00
Dry	40.00	@	42.00

(Delivered)

No. 1 Domestic and Canadian	36.00	@	37.50

Chemical Pulp

(On Dock, Atlantic, Gulf and West Coast Ports)

Bleached Sulphite (Domestic and Foreign)— Prime Bleached Sulphite	3.50	@	4.65
Prime Qualities— Easy-Bleaching Sulphite	3.25	@	3.75
Strong Unbleached Sulphite	2.75	@	3.65

(On Dock, Atlantic Ports)

Kraft Bleached	4.00	@	4.75
Kraft Light & Strong	3.00	@	3.75
Kraft No. 1	2.75	@	3.65
Kraft No. 2	2.50	@	2.75

(F.o.b. Pulp Mill)

Kraft Domestic	2.00	@	2.50

(Delivered)

Soda Bleached	3.25	@	—

Add 60 cents per short ton, dock charges for Albany; $2.50 for Lake Ports East and $3.50 for Lake Ports West of Mackinac Straits.

Domestic Rags

New Rags

(Prices to Mill f. o. b. N. Y.)

Shirt Cuttings— New White, No. 1	7.50	@	7.75
Silesias, No. 1	5.25	@	5.75
New Unbleached	7.50	@	8.00
Blue Overall	6.25	@	6.50
Fancy	2.75	@	3.00
Washables	2.25	@	2.50
Mixed Khaki Cuttings	3.75	@	4.00
O. D. Khaki Cuttings	4.25	@	4.35

Old Rags

White, No. 1— Repacked	3.50	@	3.60
Miscellaneous	2.75	@	3.00
White, No. 2— Repacked	2.25	@	2.50
Miscellaneous	2.00	@	—
Thirds and Blues— Repacked	1.50	@	1.75
Miscellaneous	1.25	@	1.50
Roofing Rags— No. 1	1.30	@	1.40
No. 2	.75	@	.80
No. 3 (bagging)	.70	@	.80
No. 4	.70	@	.80
No. 5A	.65	@	.70

Foreign Rags

New Rags

New Dark Cuttings	2.25	@	2.40
New Mixed Cuttings	2.00	@	2.20
New Light Silesias	5.50	@	5.75
Light Flannelettes	5.50	@	5.75
New White Cuttings	7.00	@	7.50
New Light Oxford	4.00	@	4.50
New Light Prints	3.00	@	3.25

Old Rags

No. 1 White Linens	7.50	@	8.50
No. 2 White Linens	6.50	@	7.50
No. 3 White Linens	4.50	@	5.50

CLINTON STARCHES

Special Grades for Beater and Top Sizing

Manufactured by
CLINTON COMPANY
CLINTON, IOWA

QUALITY **SERVICE**

TRAYLOR

KILNS, COOLERS, DRYERS, SCRUBBERS, SLAKERS

Are used by many of the greatest chemical and process industries—a fact that paper manufacturers cannot afford to overlook

Write us for details—No obligation!

TRAYLOR ENGINEERING & MFG. CO
ALLENTOWN, PENNSYLVANIA, U. S. A.

NEW YORK CITY 2010 Empire State Bldg. CHICAGO 2151 One LaSalle St. Bldg. SALT LAKE CITY 181 West Second South St
LOS ANGELES 810 Chester Williams Bldg. SEATTLE 6811 22nd Ave., N. E.

Pulp and Paper Mill Screens

Of Stainless Steel—Copper—Bronze—Monel—Chemical Resisting Alloys

Perforations that are accurate in size

Any Metal Any Perforation

The Harrington & King PERFORATING CO.

5652 FILLMORE ST., CHICAGO, ILL. 114 LIBERTY ST., NEW YORK, N.Y.

FACTS YOU SHOULD KNOW

about "Buffalo"

PAPER STOCK
PUMPS

are in this book... write for it

BUFFALO PUMPS, INC.
443 BROADWAY – BUFFALO, N. Y.
Branch Engineering Offices in Principal Cities In Canada: Canada Pumps Ltd., Kitchener, Ont.

Pulpers and Refiners
Double-Disc Action

THE BAUER BROS. COMPANY,
Box 509-T
Springfield, Ohio

LANGSTON SLITTERS

SHEAR CUT

Improve the quality of your product by using Langston Shear-Cut Slitters which slice the paper cleanly from start to finish of the roll.

Samuel M. Langston Company, Camden, N. J.

CLEAN CUT

AND ROLL WINDERS

MISCO "C"

THE CORROSION RESISTANT ALLOY

CAST • ROLLED • FABRICATED

for all equipment exposed to corrosion by sulphite acids

MICHIGAN STEEL CASTING CO., DETROIT, MICH

LINDSAY WIRES

Longerimp, Spiral Weave
Modified Longerimp
Duo-Wear and Regular Weave

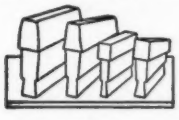
They are all "Live Wires"

THE LINDSAY WIRE WEAVING COMPANY
14025 Aspinwall Ave., Cleveland, Ohio

WOOD COGS

OF ALL DESCRIPTIONS, BLANK OR FINISHED

From Thoroughly Seasoned New Hampshire Rock Maple



The Best Cog Stock in the World

THOMPSON MANUFACTURING CO.
Lancaster, - New Hampshire

No. 4 White Linens	2.25	@	3.25
No. 1 White Cotton	4.25	@	4.75
No. 2 White Cotton	3.25	@	3.75
No. 3 White Cotton	2.50	@	3.00
No. 4 White Cotton	1.90	@	2.20
Extra Light Prints	2.00	@	2.40
Ord. Light Prints	1.75	@	2.15
Med. Light Prints	1.55	@	1.95
Dutch Blue Cottons	2.25	@	2.50
French Blue Linens	3.00	@	—
Checks and Blues	2.00	@	—
Linsey Garments	2.00	@	2.10
Dark Cottons	1.60	@	1.70
Old Shopperies	1.45	@	—
New Shopperies	1.45	@	—
French Blues	2.25	@	2.50

Old Rope and Bagging

(Prices to Mill f. o. b. N. Y.)

Gunny No. 1—			
Foreign	2.25	@	2.35
Domestic	2.15	@	2.35
Wool Tares, light	1.50	@	1.75
Wool Tares, heavy	2.00	@	2.10
Bright Bagging	1.60	@	1.70
Manila Rope—			
Foreign	3.25	@	3.50
Domestic	3.50	@	3.75
Jute Threads	2.75	@	3.00
Sisal Strings	2.35	@	2.45
Mixed Strings	Nominal		

Old Waste Papers

(F. o. b. New York)

Shavings—			
White Envelope Cuttings	2.70	@	2.80
Ordinary Hard White No. 1	1.90	@	2.00
Soft White No. 1	2.15	@	2.25
Flat Stock—			
Stitchless	.75	@	.85
Overissue Mag	.75	@	.85
Solid Flat Book	.55	@	.60
Crumbled No. 1	.40	@	.45
Ledger Stock	1.00	@	1.10
New B. B. Chips	.25	@	.30
Manila—			
New Env. Cut	1.85	@	2.00
New Cuttings	1.50	@	1.60
Old Kraft Machine— Compressed bales	.70	@	.75
News—			
No. 1 White News	1.10	@	1.20
Strictly Overissue	.45	@	.50
Strictly Folded	.27½	@	.30
No. 1 Mixed Paper	.15	@	.20

Twines

(F. o. b. Mill)

(Soft Fibre)

Coarse Polished—			
India	.15	@	.16½
White Hemp	.16	@	.17½
Fine Polished—			
Fine India	.20	@	.22
Unpolished—			
Box	.11	@	.11½
Paper Makers	.11	@	.12¾
Tube Rope	.11½	@	.14¼
Wall Paper	.12½	@	.13¾
Wrapping	.14	@	.14½
Soft Fiber Rope	.13¾	@	.14¼

(Hard Fibre)

Medium Java	.12	@	.12½
Mex. Sisal	.11	@	.11½
Manila	.21	@	.28
Domestic	3.25	@	3.50
Transmission Rope	1.75	@	1.90
Soft Jute Ropes	1.90	@	2.00
Jute Carpet Threads	1.40	@	1.60
Gunny No. 1			
Foreign	2.20	@	2.25
Domestic	1.90	@	2.00
Bleachery Burlap	3.75	@	4.00
Scrap Burlap			
Foreign	1.80	@	1.90
Domestic	1.60	@	1.80
Scrap Sisal	1.90	@	2.00
Scrap Sisal for Shredding	2.25	@	2.50
Wool Tares, Heavy	2.00	@	2.05
New Burlap Cuttings	2.45	@	3.00
Aust. Wool Pouches	3.50	@	3.65
Heavy baling bagging	2.10	@	2.15
Paper Mill Bagging	1.50	@	1.60
Bagging No. 2	.85	@	1.00

Domestic Rags (New)

(F. o. b. Boston)

Shirt Cuttings—			
New Light Prints	.03	@	.03¼
New White No. 1	.07½	@	.07¾
New White No. 2	.05½	@	.05¾
New Light Flannelettes	—	@	.06
Silesias No. 1	.03¾	@	.04
New Black Silesias	.03¾	@	.04
Silesias No. 1			
Soft Unbleached	.08	@	.08¼
Blue Cheviot	.06¾	@	.07
Fancy	.03¼	@	.03½
Washable	.03	@	.03¼
Cottons—According to grades—			
Blue Overalls	.06½	@	.06¾
New Black, soft	.03¾	@	.04
Khaki Cuttings	.03½	@	.04
O. D. Khaki	.04	@	.04¼
Corduroy	.02¾	@	.03
New Canvas	.07¼	@	.07¾
B. V. D. Cuttings	.08¼	@	.08½

Domestic Rags (Old)

(F. o. b. Boston)

Canvas	.04½	@	—
White No. 1—			
Repacked	—	@	2.75
Miscellaneous	2.50	@	2.75
White No. 2—			
Repacked	1.90	@	2.00
Miscellaneous	2.00	@	2.25
Twos and Blues	1.75	@	2.00
Third and Blues—			
Repacked	1.37½	@	1.75
Miscellaneous	1.25	@	1.62½
Black Stockings	3.90	@	4.00
Roofing Stock			
No. 1	1.15	@	1.20
No. 2	.95	@	1.00
No. 3	.85	@	.90

Foreign Rags

(F. o. b. Boston)

Dark Cottons	1.30	@	1.40
Dutch Blues	2.85	@	3.00
New Checks and Blues	2.85	@	3.00
Old Fustians	2.50	@	2.60
Old Linsey Garments	1.90	@	2.00
New Silesias	6.00	@	6.50

PHILADELPHIA

Domestic Rags (New)

(Price to Mill, f. o. b. Phila.)

Shirt Cuttings—			
New White, No. 1	.07	@	.07½
New White, No. 2	.04½	@	.05
Light Silesias	.05½	@	—
Silesias, No. 1	—	@	.05½
Black Silesias, soft	.03	@	.03½
New Unbleached	.07	@	.07½
Washable, No. 1	.02	@	.02¾
Blue Overall	.04	@	.04½
Cottons According to grades—			
Washable, No. 2	.01½	@	.01¾
New Blue	.01¼	@	.01½
Fancy Percales	—	@	.03½
New Black Soft	.03	@	.03½
New Light Seconds	—	@	.05½
New Dark Seconds	1.00	@	1.25
Khaki Cuttings—			
No. 1 O. D.	.03½	@	.04
No. 2 Mixed	—	@	.02¾
Corduroy	.02½	@	.02¾
New Canvas	.06	@	.06½
New Black Mixed	.02	@	.02¾

Domestic Rags (Old)

White No. 1—			
Repacked	3.00	@	3.25
Miscellaneous	2.75	@	3.00
Thirds and Blues—			
Miscellaneous	1.25	@	1.50
Repacked	1.50	@	1.75
Black Stockings (Export)	3.00	@	3.50
Roofing Stock—			
Foreign No. 1	—	@	1.25
Domestic No. 1	—	@	1.25
Domestic No. 2	1.00	@	1.10
Roofing Bagging	.80	@	.90

Bagging

(F. o. b. Phila.)

Gunny, No. 1—			
Foreign	1.75	@	—
Domestic	1.70	@	1.75
Manila Rope	3.00	@	3.25
Sisal Rope	2.00	@	2.25
Mixed Rope	1.00	@	1.10
Scrap—			
No. 1	1.50	@	—
No. 2	1.00	@	1.25
Wool Tares, heavy	3.25	@	3.50
Mixed Strings	1.00	@	1.10
No. 1 New Light Burlap	3.00	@	3.50
New Burlap Cuttings	2.00	@	2.25

Old Papers

(F. o. b. Phila.)

Shavings—			
No. 1 Hard White	2.35	@	2.40
No. 2 Hard White	2.00	@	2.10
No. 1 Soft White	2.00	@	2.10
No. 2 Soft White	1.40	@	1.50
No. 1 Mixed	.70	@	.75
Solid Ledger Stock	1.50	@	1.60
Ledger Stock, white	1.25	@	1.30
Ledger Stock, colored	.85	@	.90
No. 1 Books, heavy	.85	@	.90
Manila Cuttings	1.50	@	1.75
Print Manila	.45	@	.50
Container Manila	—	@	.40
Kraft Paper	.90	@	.95
No. 1 Mixed Paper	.25	@	.30
Straw Board Chip	.25	@	.30
Binders Board Chip	.25	@	.30
Corrugated Board	.50	@	.55
Overissue News	.55	@	.60
Old Newspapers	.30	@	.35

BOSTON

Old Papers

(F. o. b. Boston)

Shavings—			
No. 1 Hard White	2.25	@	2.40
No. 1 Soft White	1.85	@	2.15
No. 2 Mixed	.75	@	.80
Solid Ledger Books	1.50	@	1.75
Overissue Ledger Stock	1.30	@	1.50
Mixed Ledgers	.85	@	.90
No. 1 Books, heavy	.70	@	.80
No. 1 Books, light	.65	@	.75
Crumpled Stitchless Book Stock	.50	@	.60
Manila Env. Cuttings	1.60	@	1.70
Manila Env. Cuttings, extra quality	2.00	@	2.25
No. 1 Old Manila	.85	@	.95
White Blank News	1.30	@	1.40
No. 1 Kraft	.90	@	1.15
Mixed Papers	.20	@	.25
Print Manila	.45	@	.50
Container Manila	.27½	@	—
Old Newspapers	.25	@	.30
Paper Wool Strings	—	@	.60
Overissue News	.45	@	.50
Box Board Chips	.35	@	.40
Corrugated Boxes	.25	@	.30
Kraft corrugated boxes	.55	@	.80
Screenings wrappers	.45	@	.50

Bagging

(F. o. b. Boston)

Manila Rope			
Foreign	2.50	@	3.00

CHICAGO

Old Papers

(F. o. b. Chicago)

Shavings—			
No. 1 White Envelope Cuttings	3.15	@	3.25
No. 1 Hard White	2.50	@	2.60
No. 1 Soft White	2.05	@	2.10
Ledger & Writings	1.30	@	1.40
Solid Books	1.20	@	1.25
Blanks	1.40	@	1.50
Krafts	.90	@	1.00
New Kraft Cuts	1.70	@	1.80
Manila Env. Cuts	2.15	@	2.25
Ex. No. 1 Manila	2.15	@	2.25
Print Manila	1.70	@	1.80
Overissue News	.60	@	.70
Old Newspapers—			
No. 1 Folded News	.45	@	.50
No. 1 Mixed Paper	.35	@	.40
Roofing Stocks—			
No. 1	2.00	@	2.10
No. 2	1.85	@	2.00

TORONTO

Paper

Bonds and Ledgers

Delivered

No. 1 White	.35½	@	.36½
No. 1 Tints	.36½	@	.37½
No. 2 White	.26½	@	—
No. 2 Tints	.27½	@	—
No. 4 White	—	@	.1550
No. 4 Tints	.16	@	.1650
No. 5 Bond—White	11.35	@	—
No. 5 Bond—Tints	12.35	@	—
No. 5 Bond—Golden Rod	13.35	@	—
No. 5 Ledger—White	.1185	@	—
No. 5 Ledger—Tints	.1285	@	—
No. 6 Bond—White	10.75	@	—
No. 6 Bond—Tints	11.25	@	—
No. 6 Bond—Golden Rod	12.75	@	—
No. 7 Bond—White	9.10	@	—
No. 7 Bond—Tints	9.60	@	—
No. 7 Bond—Golden Rod	11.10	@	—
Book—			
No. 1 M. F.	7.10	@	7.35
No. 2 M. F.	6.85	@	7.20
No. 3 M. F.	5.60	@	6.20
No. 1 S. C.	7.60	@	7.85
No. 2 S. C.	7.10	@	7.35
No. 3 S. C.	6.10	@	6.35
No. 1 Coated and Litho	12.50	@	—
No. 2 Coated and Litho	11.00	@	—
No. 3 Coated and Litho	9.50	@	10.00
Coated tinted	13.00	@	13.50
Wrapping—delivered—			
Rag Brown	4.85	@	5.55
White Wrap	4.00	@	—
"B" Manila	4.90	@	6.25
No. 1 Manila	5.50	@	7.00
Fiber	5.50	@	—
Kraft, No. 2	5.50	@	—

(F. o. b. Cars, Toronto)

News, per ton—			
Rolls (contract)	38.50	@	—
Sheets	45.50	@	—

Pulp

Ground wood	32.00	@	—
Unbleached Sulphite	59.00	@	—
Book (Class 1)	71.00	@	—
Writing (Class 2)	72.00	@	—
Select (Class 3)	73.00	@	—

Old Waste Paper

(In carload lots, f. o. b. Toronto)

Shavings—			
White Env. Cut	2.50	@	—
Soft White	2.15	@	—
White Blk. News	1.25	@	1.40
Book and Ledger—			
Flat Magazine and Book Stock (old)	1.00	@	—
Light and Crumpled Book Stock	.85	@	—
Ledgers and Writings	1.20	@	—
Manilas—			
New Manila Cut	1.50	@	—
Printed Manilas	.65	@	—
Kraft	1.00	@	1.70
News and Scrap—			
Strictly Overissue	.65	@	—
Strictly Folded	.60	@	—
No. 1 Mixed Paper	.50	@	—

Domestic Rags

(Price to mills, f. o. b. Toronto)

No. 1 White Shirt Cuttings	.09	@	.09½
Fancy Shirt Cuttings	.03½	@	.03¾